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83.469E

Draft EIR Publication Date: March 22, 1985
Public Hearing Date: April 25, 1985
Public Comment Period: March 22, 1985 to May 10, 1985
Certification Date: August 22, 1985

● Changes from the text of the Draft EIR are indicated by a solid dot at the beginning of each revised section, paragraph or table.

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UNIVERSITY OF SAN FRANCISCO HEALTH AND RECREATION CENTER AND COGENERATION SYSTEM

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University of San
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CHAPTER I. SUMMARY

A. Project Description

The project sponsor, the University of San Francisco (USF), proposes to construct a Health and Recreation Center and a Cogeneration System on its campus. The Health and Recreation Center would provide recreational facilities for University students, faculty, staff, alumni and neighborhood residents. The Cogeneration System would replace an aging boiler system on the USF campus.

The proposed Health and Recreation Center would be located on Lots 1 and 1B in Assessor's Block 1144 (275,400 sq. ft.), bounded by Stanyan St. to the west, Turk St. to the north and Parker Ave. to the east. The site currently contains Loyola Hall, Loyola Gym, Negoesco Soccer Field and three parking lots.

The proposed Health and Recreation Center would be one building composed of four contiguous units: the existing Loyola Gym, a new Racquetball Court Building, a new Natatorium and a new Multi-Purpose Courts Building. These four units would be connected by glass atria and would occupy about 119,000 square feet. Negoesco Soccer Field would be rehabilitated and the spectator stands would be moved from the west to the east side of the field; a press box and public bathrooms would be incorporated into these new stands. The existing parking lots on the project site would be consolidated into one lot at the corner of Turk St. and Parker Ave.

The proposed Cogeneration System would be installed in the existing Steam Plant beneath Gleeson Library, located in Lot 1 in Assessor's Block 1145, fronting Golden Gate Ave. between Chabot Terrace and Temescal Terrace.

- The Cogeneration System would produce both steam (478,000 therms per year) and electricity (12.4 million kilowatt-hours per year). The steam produced would be used to heat existing USF campus buildings and the Recreation Center. Electricity would be generated for use on campus. On the coldest days, production of the required amount of steam would result in production of more electricity than would be used on campus, and this electricity would be sold to PG&E. At warm times of year, when generation of required steam would result in the production of less electricity than demand, USF would buy electricity from PG&E.

- Cogeneration equipment would include a natural gas fired engine-generator, a boiler, piping and controls. A heat radiator unit measuring 11 ft. x 9 ft. would be placed on the Gleeson Library roof behind the existing parapet, surrounded by an unroofed, acoustic enclosure.

The proposed project has changed its scope between the publication of the Initial Study (see pp. A-1 to A-22) and the preparation of the Preliminary Draft EIR. The Cogeneration System was originally the only facet of the proposed project. The project sponsor decided to reduce the Cogeneration System in size and move it from the Cole Street site to the Gleeson Library site after the Initial Study was published. The environmental reviews for the Health and Recreation Center project and the Cogeneration System project have been combined in this Environmental Impact Report since the two projects would both be sited on the University's campus and the two have been submitted for review within the same time frame. However, the two

projects are not dependent on each other and could be built at different times.

At the time the University of San Francisco submitted its 1983 revised campus master plan to the San Francisco Planning Commission, both a cogeneration project and a windmill project were included in the USF energy management program. Initial environmental evaluation raised concerns that led USF to

delete the windmill project from its energy program. The windmill project is, therefore, noted only as a discarded alternative in this document. If, at any time in the future, USF proposes a windmill project, that project would be subject to independent environmental review. The proposed Health and Recreation Center site was introduced in the May 1979 USF Master Plan. For a more detailed discussion of Project Description see Chapter II, pp. 11 to 31.

B. Environmental Effects

Energy

The cogeneration project would cause a net decrease in regional fossil fuel consumption by about 1,800 barrels of oil per year because of the greater efficiency of cogeneration as compared to separate production of electricity and steam. However, the Cogeneration System would increase the use of natural gas at USF by approximately 225 therms/hr.[3] (see Chapter III, Section A, pp. 55 to 59 for further discussion).

Air Quality

Combustion of natural gas by the Cogeneration System would produce air pollutants; nitrogen oxide, carbon monoxide and hydrocarbons would be discharged from the exhaust stack at the facility. Of these pollutants, only nitrogen oxides (NO_X) would require the implementation of Best Available Control Technology (BACT) to reduce air emissions. BACT for NO_X would be incorporated in the project design in the form of a "lean-burning engine." These air pollutants would not be expected to adversely affect persons in the vicinity of the project. See Chapter III, Section B, pp. 60 to 64 for an analysis of air quality impacts.

Noise

Noise generated by Recreation Center users would not be expected to increase the existing background noise level in the nearest residential area. Noise levels generated by the Cogeneration System would, at worst case, be equal to noise levels of the existing setting.

During the 18-month construction period, construction noise audible in neighboring residences would occasionally be high enough to interfere with conversation and other activities. See Chapter III, Section C, pp. 64 to 72 for further discussion and Appendix C, pp. A-24 to A-27, for more information regarding technical aspects of environmental noise.

Transportation, Circulation and Parking

During the 18-month construction period of the Health and Recreation Center and Cogeneration System, construction employee vehicle activity would generate approximately 100 vehicle trips during the PM commute period. Construction vehicle activity would average six truck stops per day during the first three and last six months, and five per day during the middle nine months. Installation of the Cogeneration System would create an average of two truck trips per day during the first four months of construction.

Operation of the the Recreation Center would generate about 4,000 weekday trips, 2,500 Saturday trips and 3,200 Sunday trips. Approximately 95% of these trips would be made by students, faculty and staff of the University and would not represent new trips from off-campus. The remaining 5% of the trips (200 on weekdays, 125 on Saturdays and 160 on Sundays) would be new trips generated by University alumni and community users of the new facility. The peak hour of use by alumni and community residents would occur

between 6:00 PM and 7:00 PM on weekdays, during which about 47 new trips would be made. The volume to capacity during the PM peak hours (4:30 PM to 6:30 PM) at the intersection of Parker Ave. and Turk St. would remain at Level of Service A, and that at Stanyan and Turk Sts. intersection would remain at Level of Service B.

- Parking on the site (currently 184 spaces in three lots) would be consolidated into one 177-space lot for a net deficit of 7 spaces on-site. The proposed Health and Recreation Center would not have measurable effects on transit lines serving the area. Approximately 2200 new pedestrian trips to the site would be generated by the Health and Recreation Center project (see Chapter III, Section D, pp. 72 to 79 for a discussion of Traffic impacts).

Land Use

The proposed Health and Recreation Center and Cogeneration System projects would require Conditional Use Authorizations to operate institutional facilities in a residential district (RH-2; House, Two Family). The Health and Recreation Center and the Cogeneration System would be within the height and bulk limits stipulated for 40-X and 80-D Height and Bulk Districts (see Chapter III, Section E, pp. 80 to 81 for further discussion).

Visual Quality

The Health and Recreation Center buildings would be visible from adjacent properties to the north, west and east (along Turk St., Stanyan St. and Parker Ave.). Some residents on McAllister St. would be able to view the project. The height of the Recreation Center would be 20 ft. lower than

that of the existing Loyola Hall. The frontage along Parker Ave., Turk and Stanyan Sts. would be landscaped.

The Cogeneration System would be entirely underground, with the exception of an exhaust stack and a heat radiator unit. The Cogeneration exhaust stack would be entirely contained within the existing exhaust stack adjacent to Gleeson Library. The heat radiator unit would be underneath a canopy atop Gleeson Library, and would thus have no visual impact on the adjacent residences (see Chapter III, Section F, pp. 82 to 85 for further discussion of visual quality impacts).

Hazards/Fire Safety

Potential hazards associated with the use of natural gas in the Cogeneration System would include leaks, fire and/or explosion. Safety measures would include gas detection shut-off devices and a failsafe, continually self-checking, automatic fire detection/suppression system. All buildings of the proposed projects would have automatic fire sprinklers (see Chapter III, Section G, pp. 85 to 87 for further discussion of Hazard Impacts).

Growth Inducement

Neither of the projects proposed by the University would serve to stimulate development of additional projects, either on or off campus. They would instead serve the needs of the existing student population (see Chapter III, Section H, pp. 87-88).

C. Major Mitigation Measures

Noise

° The Cogeneration System would be enclosed in an acoustically treated shell to reduce its noise to levels equivalent to those of the existing Steam Plant.

° The air intakes and exhaust outlets (including the heat radiator unit) of the Cogeneration System would be equipped with silencers to reduce noise measured at the nearest homes to levels that would not exceed ambiant criteria.

° The heat radiator unit would be run at low-speed during the nighttime to reduce noise.

° The heat radiator would be encased in a noise insulating enclosure that would reduce noise levels to those within the respective daytime and nighttime ambient ranges.

Transportation, Circulation and Parking

° The general contractor for the project would meet with the Department of Public Works to establish construction vehicle routes that would minimize impacts to residents and existing businesses in the vicinity of the project site.

° USF would apply its existing program of encouraging the use of public transit to users of the proposed Recreation Center by providing transit maps and information in appropriate locations and through the sale of MUNI Fast Passes on campus.

° On-campus parking lots would be restriped and re-engineered to add park-

ing to offset the seven space reduction in on-site parking.

Visual Quality

° The project site would be landscaped along circulation paths and in front of Parker Ave., Turk and Stanyan Sts.

° Exposed glass surfaces would be screened with trees and shrubs to reduce glare.

° The Cogeneration System would be installed in an existing basement out of sight.

D. Alternatives to the Proposed Project

Alternative 1. Recreation Center at Ulrich Field

The Health and Recreation Center would be located at Ulrich Field on the east side of the campus along Masonic Ave. Land use, visual, and construction impacts would be greater than those of the proposed Health and Recreation Center. This alternative has been rejected by the project sponsor (see Chapter VII, pp. 95 to 98 for a further discussion of Alternative 1).

Alternative 2. Conversion of Loyola Hall

Rehabilitation of the present building on site into a Recreation Center is discussed. Construction impacts of this alternative would be less than for the proposed project. Other impacts associated with the Health and Recreation Center would be similar. Alternative 2 is discussed futher in Chapter VII, pp. 98 to 99. The project sponsor has rejected this alternative on the grounds that Loyola Hall, completely gutted, would not provide enough space for the facilities contemplated.

Alternative 3. Health and Recreation Center Not Built

The Health and Recreation Center would not be built. The project site would remain in its present condition. This alternative does not meet the project sponsor's goal of creating additional recreational facilities on the USF campus and may result in declining student enrollment because of the continued overcrowding of present athletic facilities (see Chapter VII, pp. 99 to 100).

Alternative 4. 9.5 mW Cogeneration Facility

A 9.5 mW Cogeneration Facility is discussed at four possible locations: Cole St. site, Gleeson Library site, Fulton St. site and the Loyola site. Construction, and its related traffic, plus noise and air quality impacts of this alternative would be greater than for the proposed system. The University has rejected the 9.5 mW alternative with the feeling that a facility of this size would not be an appropriate use for the campus nor for the surrounding residential neighborhood. See Chapter VII, pp. 100 to 110 for further discussion of this Alternative.

Alternative 5. Alternate Energy Sources

Photovoltaic cells and windmills were considered as alternate energy sources for the project. These alternatives would have a greater land requirement than the proposed cogeneration project. Project sponsor has rejected this alternative because there is not enough space on the USF campus for the cells or windmills needed to generate USF's electricity demand (see Chapter VII, pp. 111 to 112).

projects are not dependent on each other and could be built at different times.

At the time the University of San Francisco submitted its 1983 revised campus master plan to the San Francisco Planning Commission, both a cogeneration project and a windmill project were included in the USF energy management program. Initial environmental evaluation raised concerns that led USF to

CHAPTER II. PROJECT DESCRIPTION

A. Project Sponsor's Objectives

The University of San Francisco, the project sponsor, proposes to construct a Health and Recreation Center and install a Cogeneration System on its campus. The Health and Recreation Center project would improve and increase the recreational facilities available to current and future enrollees of the University. The University currently conducts physical education classes at various locations on its campus and also at some San Francisco City facilities. The proposed Recreation Center would integrate many intramural sports activities into a single, modern center on campus to serve the students, faculty, staff and alumni of USF, as well as the surrounding community.

To insulate itself against rising energy costs, the University would partially replace an aging steam plant used for campus heating with a Cogeneration System that would produce electricity and steam for campus use. The sponsor has engaged the services of Pflueger Architects to design the Health and Recreation Center. FMC Associates, Engineers would design and install the Cogeneration System.

Environmental analyses of the Health and Recreation Center and Cogeneration System are combined in this document because both would be on the USF campus and are being planned at the same time. Although the Cogeneration Facility has been sized to provide steam for the Recreation Center, these two projects would not be dependent on each other and could be built at different times.

B. Project Location

The two projects contemplated, although within the boundaries of the University, would be constructed on separate Assessor's Blocks and Lots. For reasons of clarity, the two project sites will be referred to in this document as the Health and Recreation Center site and the Cogeneration System site.

The Health and Recreation Center site is located on Lots 1 and 1B in Assessor's Block 1144, bounded by Stanyan St. to the west, Turk St. to the north and Parker Ave. to the east (see Figures 1-2, pp. 13-14). The Health and Recreation Center site is in a RH-2 (House, Two Family) Zoning District. The majority of the project block is in a 40-X Height and Bulk District. The southern portion of the soccer field and the southern border of the site are in a 80-D Height and Bulk District.

The Cogeneration System would replace two of the four steam boilers in the existing steam plant located beneath Gleeson Library, Lot 1, in Assessor's Block 1145, fronting along Golden Gate Ave. between Chabot Terrace and Temescal Terrace. The other two existing boilers would be replaced with ordinary standby boilers of the same capacity.

C. Project Characteristics

Health and Recreation Center

The proposed Health and Recreation project would involve the entire University owned parcel on Block 1144 (see Figure 3, p. 15). Construction would occur primarily along Stanyan St. A 172-space parking lot (48,000 sq. ft.) would be constructed by consolidating all three lots currently on site into one lot located on the northern portion of Block 1144 along

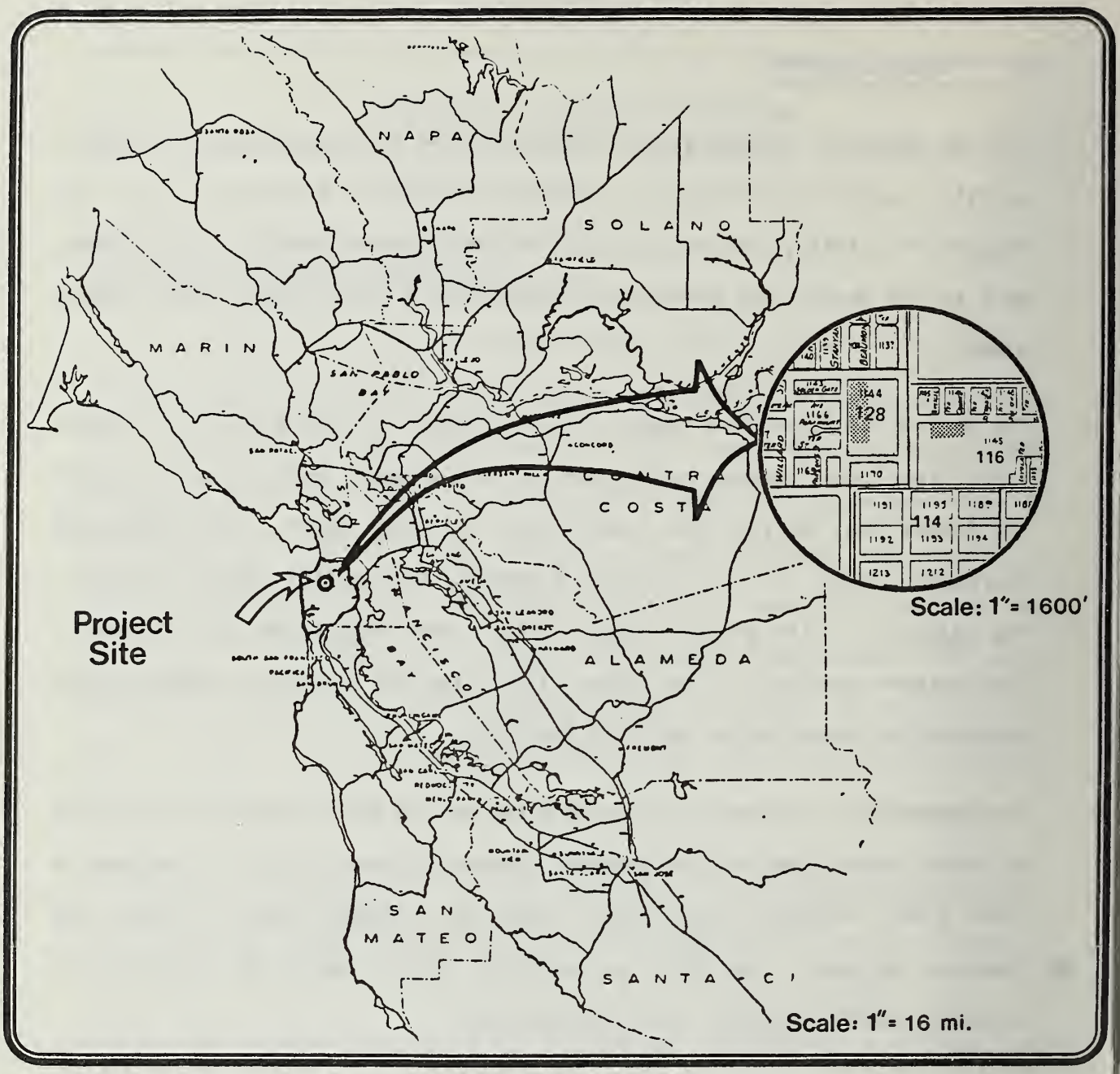


FIGURE 1

REGIONAL LOCATION

USF HEALTH AND RECREATION CENTER and COGENERATION SYSTEM

⊙ PROJECT SITE

↑ N

SOURCE: Bendix Environmental Research, Inc., and Pflueger Architects

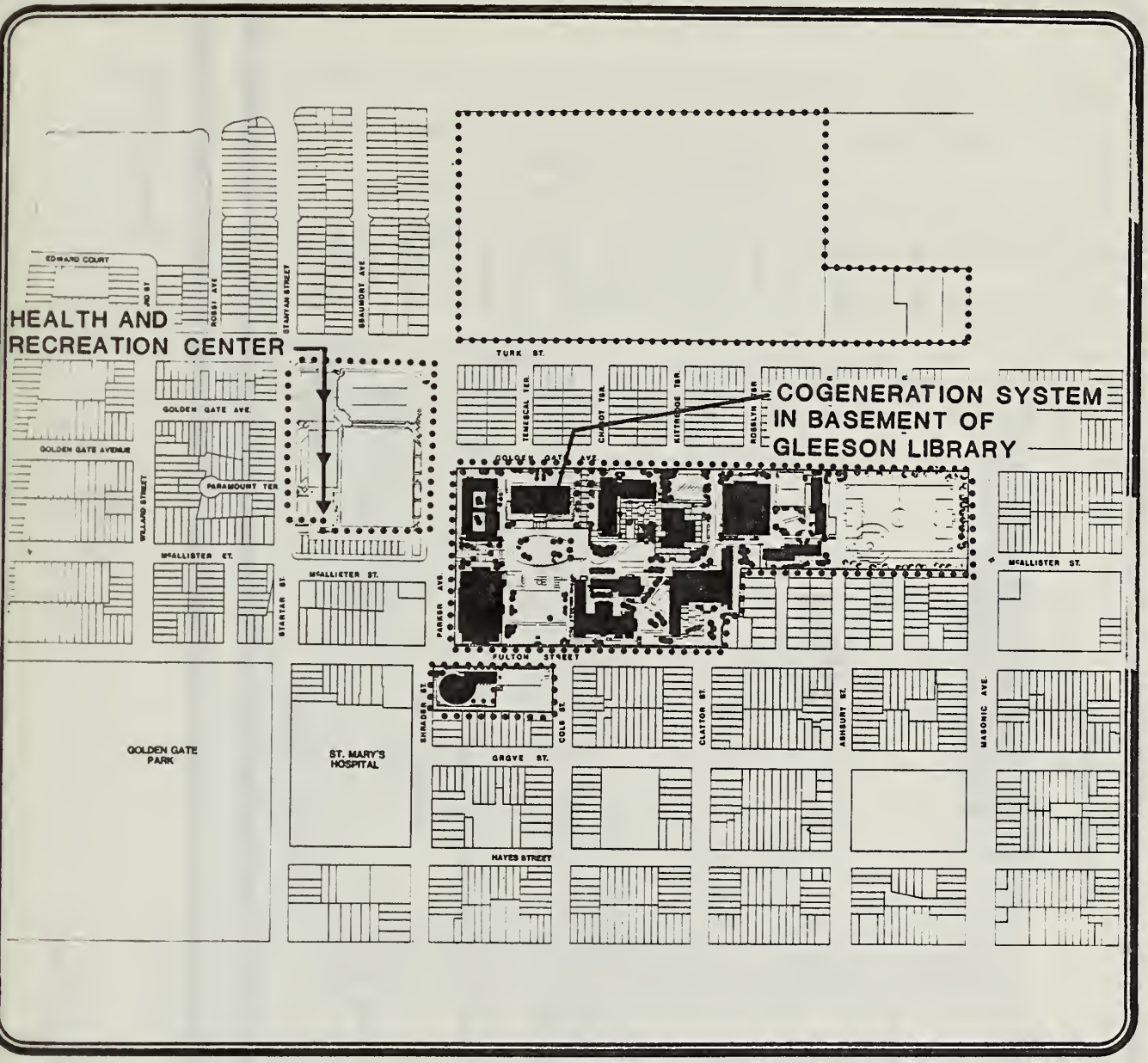


FIGURE 2

SCALE: 1″=500′

SITE LOCATIONS

..... University of San Francisco Boundary

N

USF HEALTH AND RECREATION CENTER
and COGENERATION SYSTEM

SOURCE: Bendix Environmental Research, Inc., and Pflueger Architects

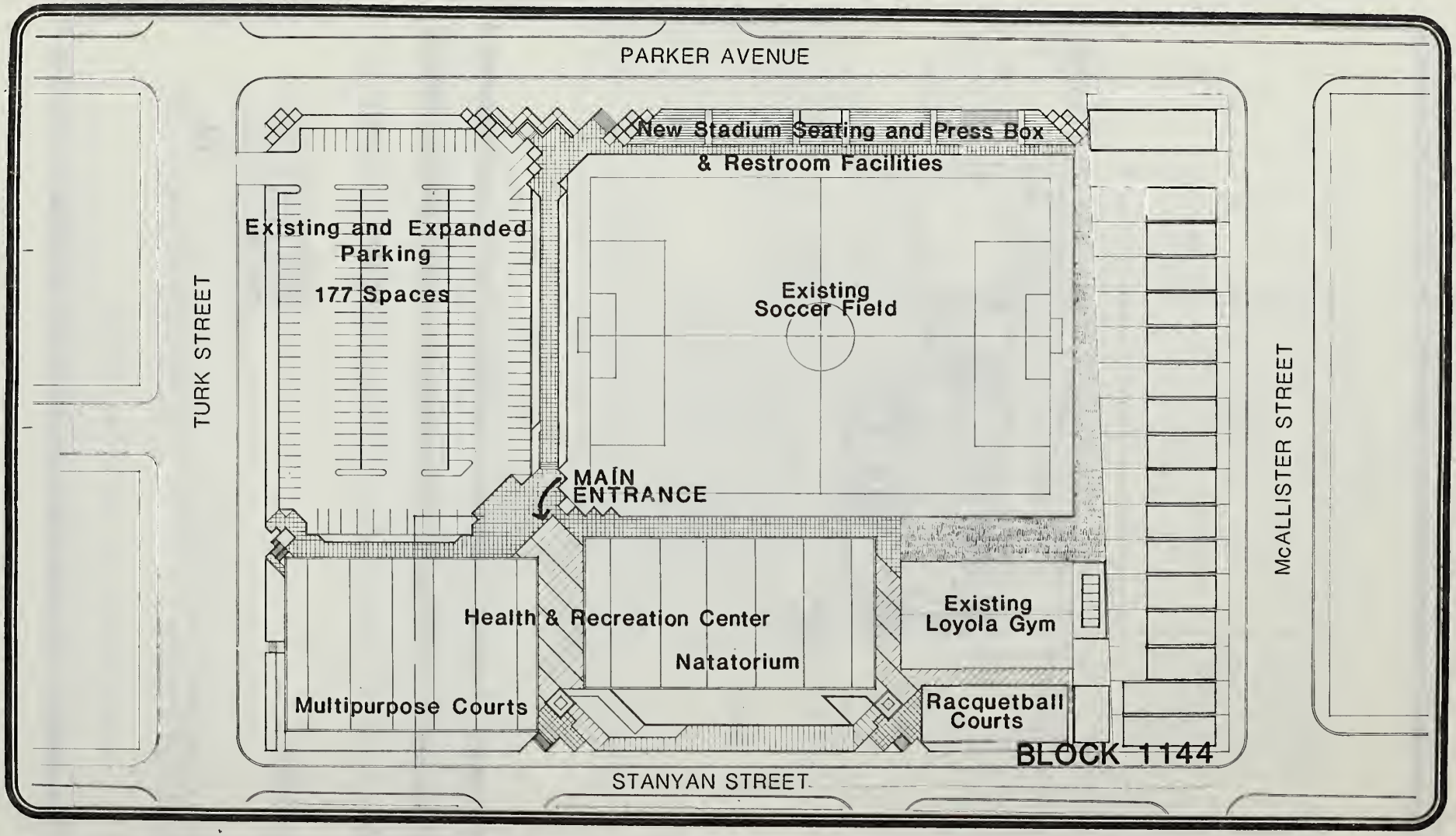


FIGURE 3

PROJECT LOCATION
USF HEALTH AND RECREATION CENTER

Scale: 1" 100'

←N

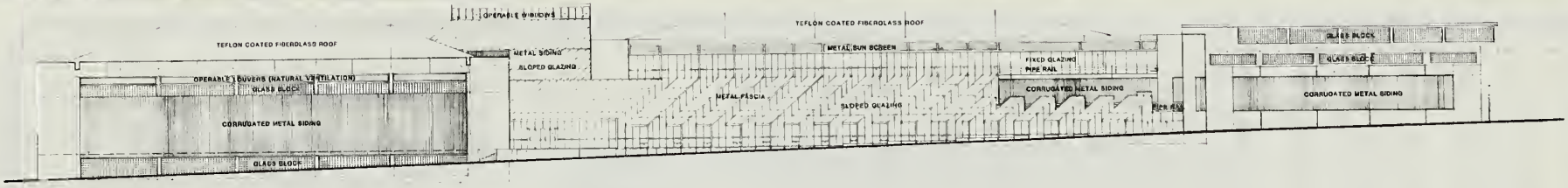
SOURCE: Bendix Environmental Research,Inc., and Pflueger Architects

Turk St. The Negoesco Soccer Field would be shifted approximately 10 ft. to the west, but would maintain its present dimensions (about 330 ft. long x 230 ft. wide). Existing spectator stands would be moved from the west side of the field and placed against the eastern hillside along Parker Ave. A press box (25 ft. long x 10 ft. wide x 10 ft. tall) and public restrooms would be incorporated into the new seating. The Health and Recreation Center would be made available for use to University students, faculty, staff, alumni and local residents (hours of use subject to limitation by the University).

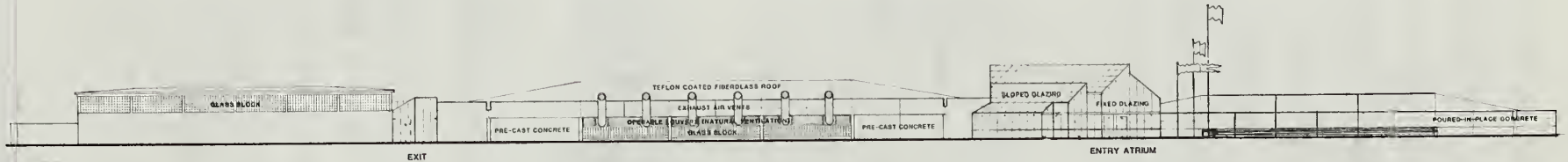
The Health and Recreation Center project plans include demolition of the existing 91,000 sq. ft. Loyola Hall and partial demolition and rehabilitation of the existing Loyola Gym (12,400 sq. ft.). The Health and Recreation Center project would consist of one building with four components, totaling approximately 118,800 gross sq. ft., or 26,400 sq. ft. of net new space:

(1)	Loyola Gymnasium	12,400 sq. ft.	175 ft. x 85 ft.
(2)	Racquetball Courts	5,500 sq. ft.	106 ft. x 52 ft.
(3)	Natatorium	57,100 sq. ft.	207 ft. x 104 ft.
(4)	Multi-Purpose Courts	43,200 sq. ft.	180 ft. x 120 ft.
(5)	Circulation	600 sq. ft.	- -

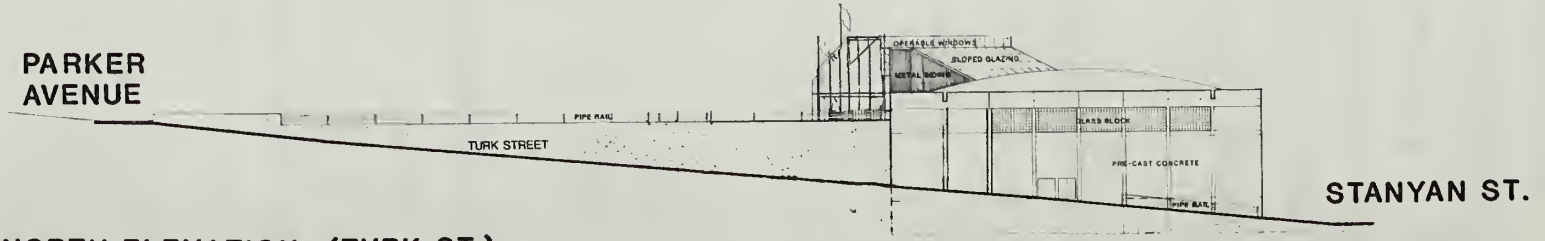
The four units of the Recreation Center would be linked together by glass atria and walkways that would interconnect the three building levels (see Figures 4 and 5, pp. 17 and 18). The glass enclosed passages would provide passive solar heating in the Recreation Center, reducing the amount of steam needed for space heating. The Center would be a maximum of 40 ft. tall as measured at the midpoint of the building along Stanyan St. Viewed in cross section, the highest point of the Recreation Center would be about 20 ft. higher than Parker Ave.



WEST ELEVATION (STANYAN ST.)



EAST ELEVATION (SOCCER FIELD)



NORTH ELEVATION (TURK ST.)

FIGURE 4

PROJECT ELEVATIONS

USF HEALTH AND RECREATION CENTER

SOURCE: Bendix Environmental Research, Inc. and Pflueger Architects

Scale: 1" = 64'

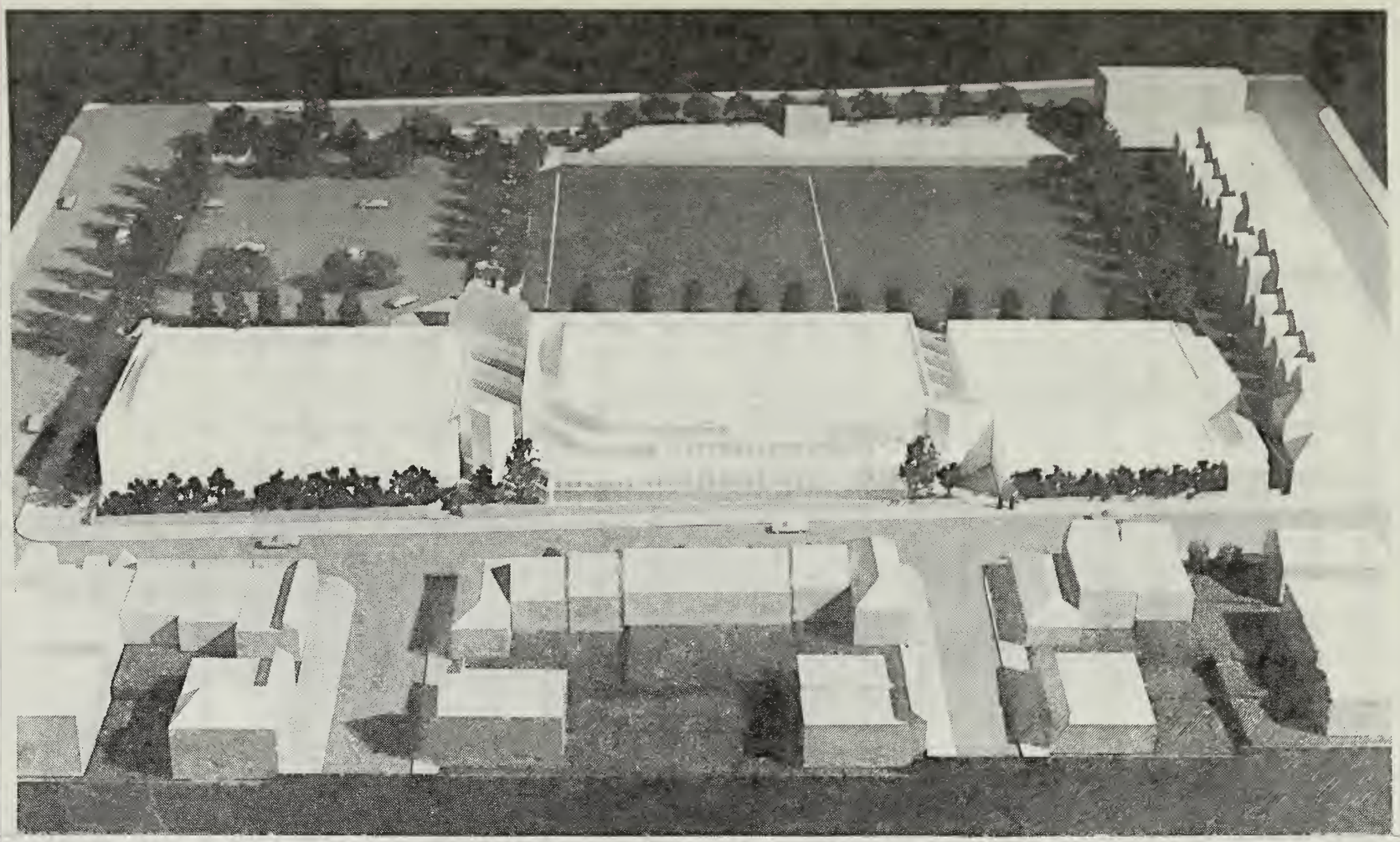


FIGURE 5

MODEL PHOTO

USF HEALTH AND RECREATION CENTER

SOURCE: Bendix Environmental Research, Inc. and Pflueger Architects

Approximately 11,000 sq. ft. of Loyola Gym (about 88% of the original struc- would be rehabilitated. Functionally, the Gym would remain the same except for the removal of 600 spectator seats. The existing Gym lobby would be removed and replaced by a new lobby integrating the Gymnasium with the rest of the Recreation Center. Adjacent to the west side of Loyola Gym would be a 5,500 sq. ft. Racquetball Building housing five courts and a teaching/ observation gallery. The courts would be used for racquetball, handball and squash. This building would be approximately 24 ft. high and set back 4 ft. from the Stanyan St. sidewalk.

A Natatorium (approximately 57,100 sq. ft.) would be constructed adjacent to the north side of Loyola Gym and would contain a 55 yard (50 meter) x 25 yard swimming pool and seating for 200 spectators (see Figure 3, p.15). An Alumni Club and University Club, a common kitchen to serve them, and a sundeck would also be included in this structure. The Natatorium would be constructed of concrete with a fiberglass roof rising to a height of 40 ft. above Stanyan St. A glass enclosed galleria serving as a circulation corridor for the Natatorium would front along Stanyan St. forming the facade of this component of the Recreation Center. The galleria, running alongside the pool unit would be set back 10 ft. from Stanyan St.

The fourth unit in the Center would be a 43,200 sq. ft. Multi-Purpose Court Building, located north of and connected to the Natatorium (see Figure 3, p. 15). This building would have a basement of about 21,600 sq. ft. for storage and mechanical space along with rooms for activities such as dance/ fitness, weight lifting, combative sports, and class meetings. The main floor of the building would contain three full-size activity courts that would permit three or more activities to occur simultaneously. A 1/10 mile

running track, approximately 8 ft. wide, cantilevered out from the wall, would be located 22 ft. above the court floor. The building would be 33 ft. high and constructed similarly to the proposed Natatorium. The Multi-Purpose Court Building would be set back 37 ft. from Stanyan St. and 12 ft. from Turk St. (measured from the inside edge of the sidewalk).

- Extending along Turk St., from the east side of the Multi-purpose Court Building to Parker Ave., would be a 177-space parking lot consolidating the three parking lots that currently exist on the site. The entrance to the consolidated parking lot would be at the existing entrance on Turk St. (see Figure 3, p. 15).

Access to the Recreation Center would be provided by an atrium entry on the east side of the Center at the third floor (parking lot) level between the Multi-Purpose and Natatorium buildings (see Figure 3, p. 15). No routine access would be available from Stanyan St. The main entrance to the Recreation Center would also be used as a delivery entrance. There would be no parking, loading, or service areas along Stanyan St. or Parker Ave.

The building setbacks along Stanyan St. would be used for landscaping and open space. New landscaping would also be placed along Parker Ave., Turk St., and along the proposed walkway between the soccer field and the parking lot (see Figure 6, p. 21). All outside utility lines servicing the Health and Recreation Center would be brought to the project site from Stanyan and Turk Sts.

Cogeneration

Cogeneration is the consecutive production of electric or mechanical energy and useful thermal (heat) energy from a single fuel. Cogeneration systems

use otherwise wasted thermal energy for applications such as space or water

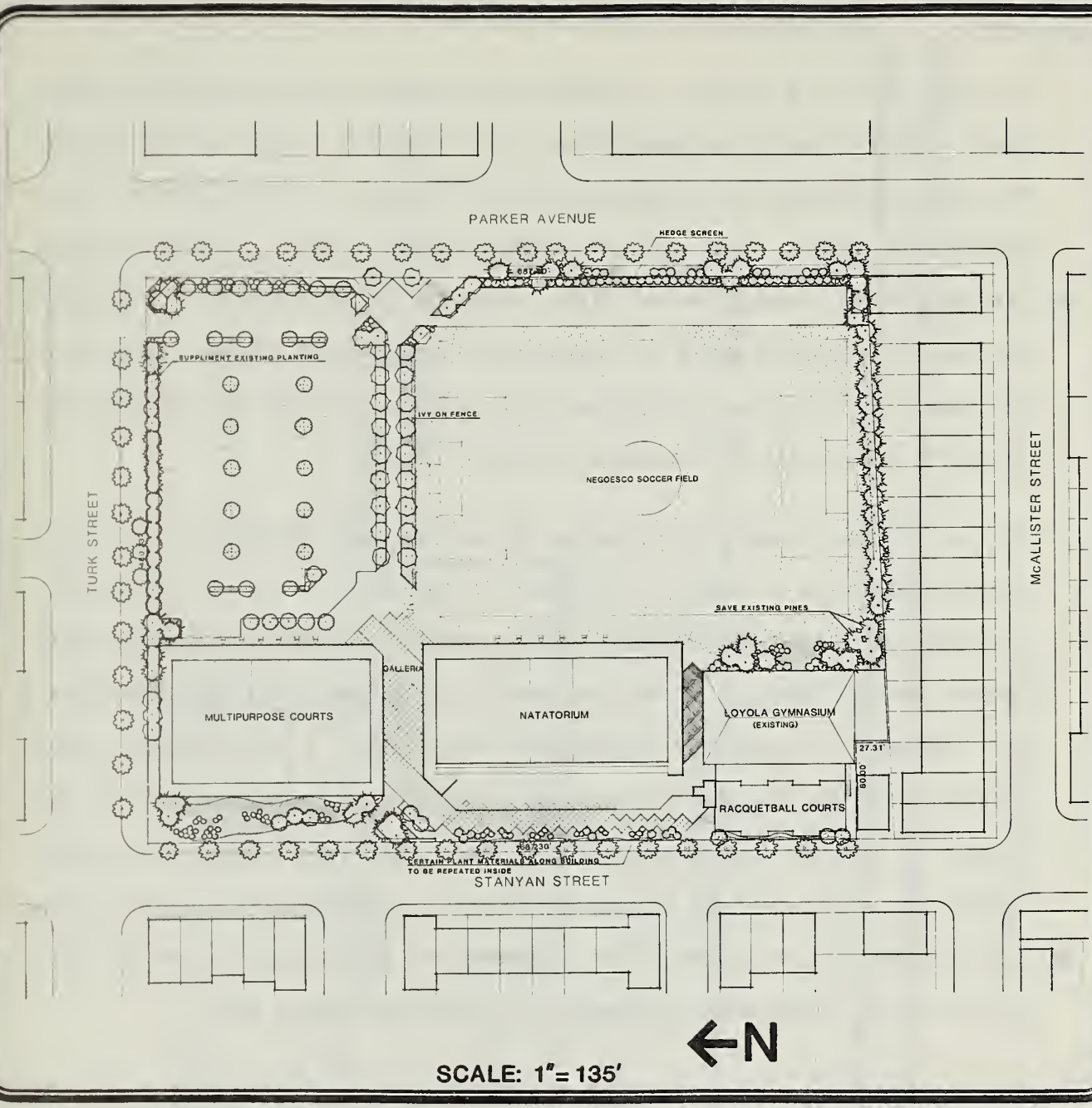


FIGURE 6

LANDSCAPE PLAN

USF HEALTH AND RECREATION CENTER

SOURCE: Bendix Environmental Research, Inc. and Pflueger Architects

PLANTING LEGEND

- STREET TREE
- LARGE SCREEN AND ACCENT TREES
- MEDIUM AND SMALL SCREEN TREES
- LARGE SCREEN AND ACCENT SHRUBS
- SMALL SHRUBS AND GROUND COVER

heating. For this reason, a cogeneration system is more energy-efficient than a typical gas-fired power plant or a standard steam heating system. The proposed Cogeneration System would use natural gas to cogenerate electricity and steam. This energy-conserving system would partially replace the natural gas fueled boiler plant currently in use at USF. (The other two existing boilers would be replaced by conventional standby boilers of the same capacity. The four boilers that would be replaced are approximately 25 years old and are near the end of their lifetimes.)

For the proposed Cogeneration System to operate cost effectively, the University must have a demand for steam. If USF were to run the electrical generator at a time of no steam demand, venting exhaust heat to the environment without benefit of heat recovery, the system would not be economical. However, if steam is cogenerated with power, a cost savings would occur because the University would save the cost of purchasing natural gas to heat a separate steam-generating boiler plant (see Figure 7, p. 23). Electrical power would be purchased directly from PG&E during periods when USF does not require steam. The Cogeneration System would operate 16 to 24 hours a day, depending on demand for steam, 365 days a year.

Cogeneration System

The proposed Cogeneration System would be entirely contained within the existing boiler plant building except for a heat radiator unit measuring 11 ft. x 9 ft. x 8 ft. that would be placed atop the Gleeson Library roof to discharge excess heat from the Cogeneration System. An exhaust stack would be contained within the existing steam plant stack located adjacent to the building (see Figures 8 and 9, pp. 24-25).

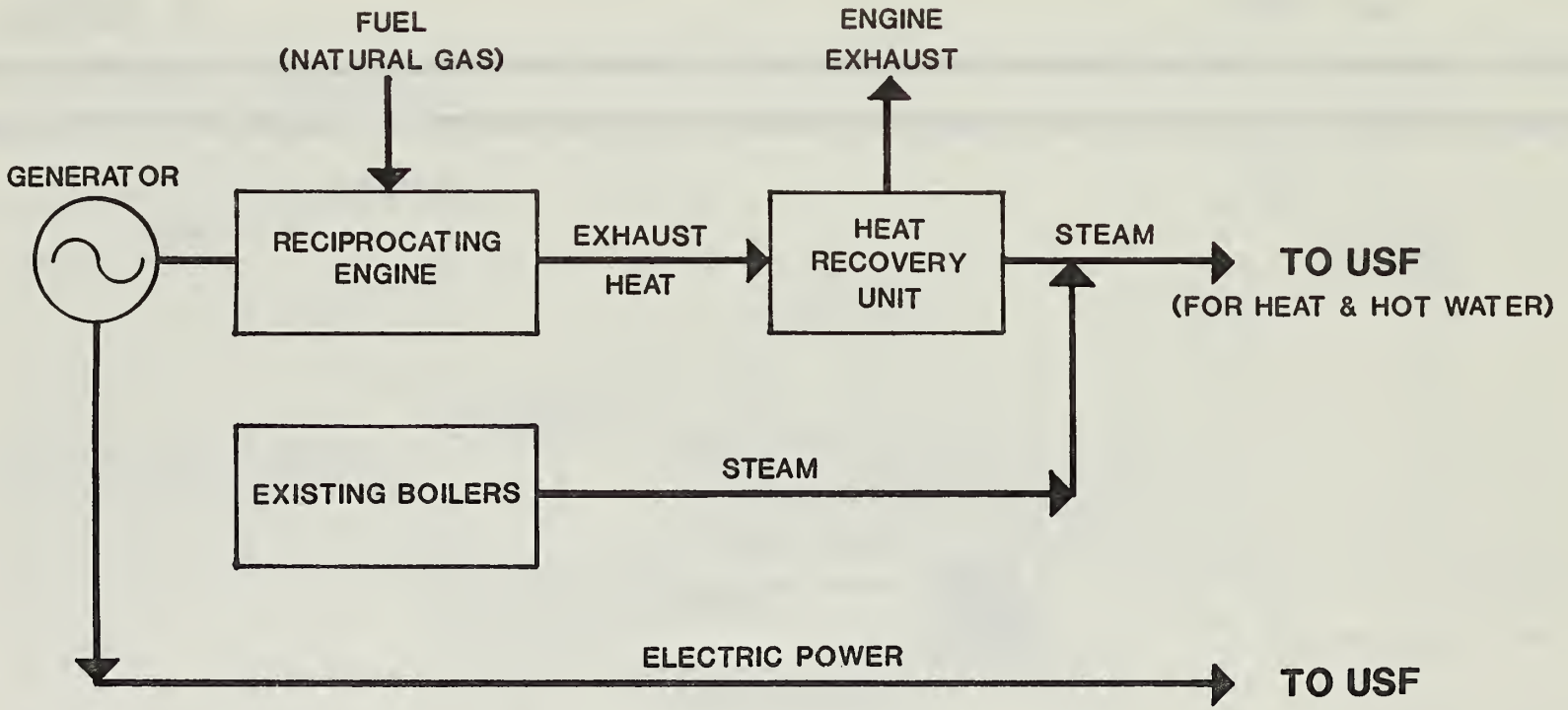


FIGURE 7

FLOW DIAGRAM USF COGENERATION SYSTEM

SOURCE: Bendix Environmental Research, Inc., and Pflueger Architects

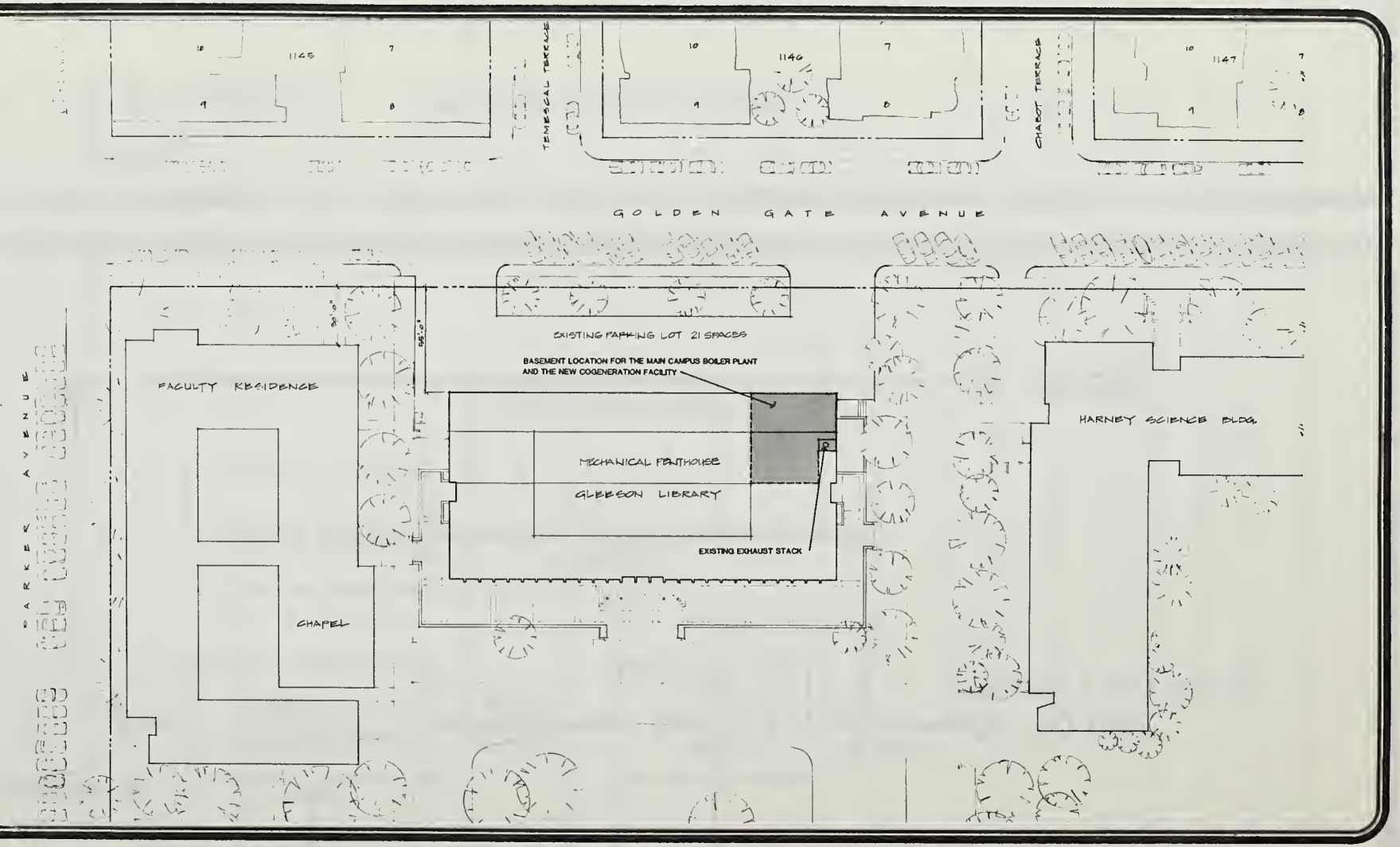


FIGURE 8

PROJECT SITE PLAN

USF COGENERATION SYSTEM

Source: Bendix Environmental Research, Inc. and Pflueger Architects

SCALE: 1"=80'

PROJECT SITE

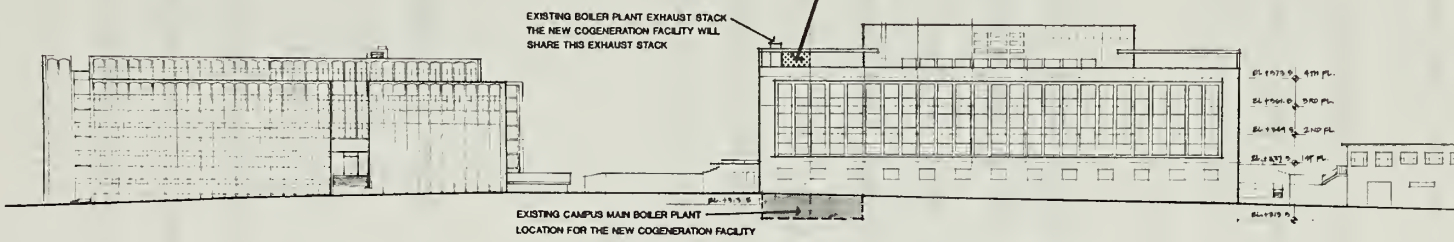
PROPERTY LINE

N

EAST ELEVATION

WEST ELEVATION

Location of heat radiator



GOLDEN GATE AVENUE ELEVATION

FIGURE 9

PROJECT ELEVATIONS

USF COGENERATION SYSTEM

SCALE: 1" 80'

PROPOSED PROJECT LOCATION

Source: Bendix Environmental Research, Inc. and Pflueger Architects

Natural gas would be burned in a low revolution engine to produce electricity and exhaust. Engine exhaust would in turn be routed to a heat exchange unit to produce 35-50 psi[2] steam (maximum production of 1,395 therms/day). This steam would be distributed throughout the campus for heating. Residual exhaust would then pass through a hospital-grade muffler and out into the environment through an existing exhaust stack.

Utility lines for the proposed Cogeneration System are in place and currently serve the existing steam plant under Gleeson Library. If necessary, a new gas line to serve the Cogeneration System would be brought in from a main line beneath Golden Gate Ave.

The Cogeneration System equipment would include a single natural gas fired, lean-burning engine such as the Waukesha model 9390 GL or the Cooper "Superior" model 165GTA, a waste heat boiler,[2] air intake vents, one exhaust stack, a heat radiator[3] and boiler feed water systems.[4] The former [engine] is currently favored and is the basis of EIR discussion except where otherwise indicated. Ancillary equipment required by the Cogeneration System would include new non-PCB-containing transformers to replace the existing PCB-containing ones on campus.

Electricity

The proposed facility would have a maximum capacity of 1,650 kilowatts (1.7mW) and would produce a net average of 12.4 million kilowatt-hours (kWh)/year.[5,6,6a] This electricity would be fed into the University electrical distribution system supplying campus buildings with power. Based on projected average steam demand for the University, the Cogeneration System would fall short of meeting average annual electricity demand by approximately 1.0 million kWh, or 8%. This deficiency of power would be made up by

power purchased from PG&E. Electrical power would be purchased from PG&E whenever the Cogeneration System was not operating because there was no demand for steam.

Steam

Most buildings on the USF campus are connected to the existing steam distribution system and would require little or no modification as a result of the system proposal (see Figure 10, p. 28). New steam lines would connect the University Center, Hayes-Healy Hall, Gilson Hall, and Kendrick Hall to the steam distribution grid as well as the Health and Recreation Center site. Should the Cogeneration System require prolonged maintenance, heat would be provided by the two new conventional boilers which would be maintained on standby status.

The Lone Mountain campus buildings are not attached to the USF campus central boiler plant and would not be included in the Cogeneration steam distribution system because of uncertainty about long-range uses of the buildings and their distance from the main campus. The long run of pipe required to cover this distance would result in excessive heat loss. Furthermore, much of the Lone Mountain campus is heated with hot water from separate boilers scattered around the Lone Mountain campus; an interconnection between the proposed Cogeneration System and these buildings would require the construction of a relatively large and costly central hot water storage tank.

D. Project Approvals

Following certification of the Final Environmental Impact Report, a Conditional Use Permit (CU) for each project would be considered by the Planning Commission. Subject to CU approvals, building permits would be issued for each project. Permits for the Cogeneration System would be required from the Federal Energy Regulatory Commission (FERC), the California Public Uti-

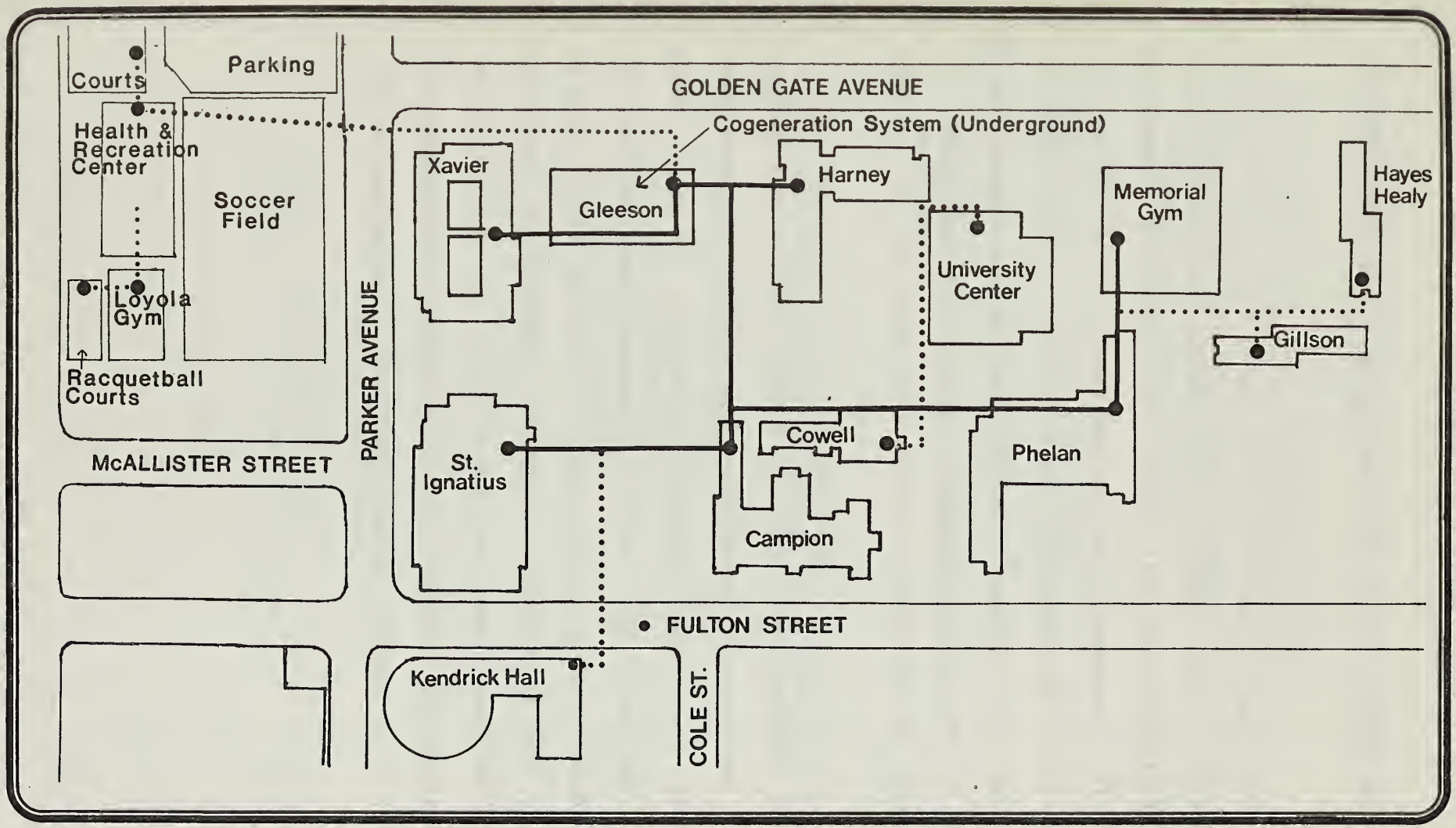


FIGURE 10

STEAM DISTRIBUTION SYSTEM

USF HEALTH AND RECREATION CENTER and COGENERATION SYSTEM

SOURCE: Bendix Environmental Research, Inc., and Pflueger Architects

N

Steam Piping

Existing — New

SCALE: 1"=200'

Buildings to scale

Piping Schematic

NOTE: Condensate return lines not shown.

lities Commission (CPUC), and the Bay Area Air Quality Management District (BAAQMD).

The FERC and CPUC promulgate and enforce the federal Public Utilities Regulatory Policies Act of 1978 (PURPA). PURPA requires electric utilities to purchase electricity from and sell electricity to qualifying cogeneration facilities at rates determined by the FERC and the CPUC. The FERC and CPUC permits would certify the Cogeneration System as qualifying under PURPA for avoided cost power sales revenue.[7] The FERC Permit for the proposed Cogeneration System has not yet been applied for but will take approximately six weeks to receive. An application for the CPUC Permit has not yet been filed.

An Authority to Construct and a Permit to Operate would be obtained from the BAAQMD. A New Source Review would be required due to projected emissions of nitrogen oxides (NO_x) exceeding 150 lbs./day. The project would emit about 280 lbs./day of NO_x (see Table 3, p. 61). No offsets[8] are expected to be required. Best Available Control Technology (BACT)[9] would be required for NO_x only and would be implemented. Prevention of Significant Deterioration (PSD)[10] requirements would not apply to the Cogeneration System, as the facility would not emit over 25 tons/year total suspended particulates (TSP) or 40 tons/year sulfur dioxide (SO_2) (see Table 3, p. 61).

D. Project Schedule and Costs

Health & Recreation Center Construction Schedule

Site Clearance (after building permit)	3 Months
Excavation and Foundation	3 Months
Building Construction Completed	12 Months
	18 Months

Cogeneration System Construction Schedule

Removal of boilers and preparation of basement site	4 months
Installation and hook-up of Cogeneration machinery	6 months
	10 months

Total construction time, including installation of equipment and connections of the Cogeneration System to PG&E and campus buildings, would be about 18 months.

Approximate Health and Recreation Center Costs

Construction and Equipment	$ 10,000,000
Engineering and Permits	1,000,000
Contingency and Escalation	1,000,000
Project cost	$ 12,000,000
Endowment for operation	3,000,000
Total cost in 1984	$ 15,000,000

Approximate Cogeneration System Costs

Equipment - total installed cost	$ 1,500,000
Engineering supervision and construction	600,000
Contingency	400,000
Total capital cost in 1984	$ 2,500,000
Escalation (6.4%)	160,000
Total capital cost in 1985	$ 2,700,000
Total capital cost in 1986	$ 2,900,000

NOTES - Project Description

1. psi = pounds per square inch.

2. waste heat boiler = a boiler that uses waste heat to produce steam.

3. heat radiator = fan unit used to cool discharge heat generated in the engine jacket, similar to an automobile radiator.

4. boiler feedwater = water supplied to the steam-generating unit.

5. kilowatt (kW) = one thousand watts. Watt = the basic unit of electric power, equal to about 1/750 of one horsepower.

6. megawatt (mW) = one million watts = one thousand kilowatts.

6a. Average production of electricity is less than theoretically possible on the basis of capacity because the system would not operate continuously at capacity.

7. See Energy Impacts, pp. 55-59.

8. offset = reduction in air emissions at one location in the air district as a condition of permit allowing new emissions at another location in the district.

9. BACT = (covers regions that are non-attainment areas only) air pollution control technology defined as the more stringent of the most effective emission control technique which has been achieved in practice for more than one year or any other emission control technique found by the Air Pollution Control Officer to be technologically feasible and cost effective.

10. PSD = air pollution regulations (governed by the EPA) in attainment areas. Control measures are the same as those defined for BACT.

CHAPTER III. ENVIRONMENTAL SETTING

A. Energy

USF's total energy use in 1982 was 9,129,000 kWh of electricity and 988,000 therms[1] of natural gas, at a cost to the University of $1.34 million (see Table 1, p. 33). This represented about 32% of the University's operating costs for the year.[2]

Heating for campus facilities is provided by the University's 25 year old central steam plant and individual building boilers. The central steam plant, located under Gleeson Library, serves seven campus buildings: Campion Hall, Gleeson Library, Harney Science Center, Memorial Gymnasium, Phelan Hall, St. Ignatius Church and Xavier Hall (see Figure 10, p. 28). Service to these facilities is provided by steam at 30 psi through an underground district heating system. Both Loyola Gym and Loyola Hall have heating systems separate from the central campus boiler system. Loyola Gym contains a gas fired boiler (17 therms/hr.) for water and space heating. Loyola Hall has a 15 therms/hr. boiler generating 4-6 psi of steam for radiator space heating. All campus heating systems use natural gas fuel; some are equipped to use diesel or fuel oil as standby fuels.

Because of increased energy costs in recent years, USF asked PG&E to perform an energy use audit in 1979. Such studies, under PG&E's Energy Management Survey Program, evaluate current energy use and recommend a program of low-cost modifications to assist the customer in reducing energy costs.

Table 1: USF 1982 Energy Use and Costs

	Excluding Lone Mountain					Total Campus					
	Gas		Electricity		Total	Gas		Electricity		Non-tax Total	Total
Month	Therms[1]	Cost[2]	kWh[1]	Cost[2]	Cost[2]	Therms[1]	Cost[2]	kWh[1]	Cost[2]	Cost[2]	Cost[3]
January	71	34	592	49	83	98	47	686	57	104	112
February	80	40	701	61	101	103	51	786	69	120	136
March	71	35	745	63	98	93	46	830	71	117	128
April	71	35	715	61	96	92	46	799	68	114	124
May	62	33	684	55	88	83	45	763	61	106	114
June	52	29	629	47	76	69	39	700	53	92	104
July	49	27	607	46	73	69	39	683	52	91	94
August	49	28	599	45	73	64	37	678	51	88	96
September	44	24	691	51	75	60	33	780	57	90	96
October	47	26	678	48	74	68	38	775	55	93	97
November	57	32	728	50	82	84	47	831	58	105	109
December	79	44	746	51	95	105	58	818	56	114	128
TOTAL	732	387	8,115	627	1,014	988	526	9,129	708	1,234	1,338
Monthly Average	61	32	676	52	85	82	44	761	59	103	112

1 All values in thousands.
2. All values in thousands of dollars; taxes and surcharges not included.
3. All values in thousands of dollars; taxes and surcharges included.

Source: USF and Bendix Environmental Research, Inc.

As a result of this audit, equipment modifications were implemented throughout the USF campus. These include more economical lightbulbs,[3] sonic light switches,[4] rezoning of lighting systems,[5] retrofitting of windows with triple glazed glass, and reroofing of facilities with polyurethane foam insulating systems.[6] Concurrently, USF students undertook an "Energy Awareness" campaign involving activities aimed at increased campus understanding of energy conservation methods and issues.

While these low-cost measures achieved a reduction in energy consumption of 15-20%, increases in energy costs nearly cancelled out the expected dollar savings. Consequently, USF now has a program of higher-cost modifications with the goal of higher energy efficiency and reduced energy costs.[2]

The first phase of the higher-cost program (mid-1983) was the installation of 8,000 sq. ft. of solar collectors on the roofs of three residence halls, one of the largest solar installations in San Francisco. This system has reduced USF's natural gas use for domestic hot water needs by approximately 55% at each residence hall.[7]

The second phase of higher-cost modifications to USF's energy system would be the proposed Cogeneration System.

NOTES - Energy

1. therm = 100,000 BTU; BTU (British thermal unit) = a standard for measuring heat, about equal to that from burning a standard kitchen match. Technically, it is the amount of heat required to raise the temperature of one pound of water 1° Fahrenheit (251,68 calories) at sea level.

2. Harold Hansen, Chief Engineer, USF, telephone conservation, October 7, 1983. Operating costs are comprised of scholarships, salaries, building and grounds maintenance, endowments, etc.

3. Lightbulb changes include 10,000 flourescent tubes changed from 40 watt to 34 watt; 600 fixtures changed from incandescent to fluorescent; 3,000 fluorescent tubes eliminated; and 60 outside fixtures changed

from 150 watt incandescent to 35 watt high pressure sodium. Per Harold Hansen, Chief Engineer, USF Plant Services, written communication, October 20, 1983.

4. Movement-activated sonic switches turn lights on when someone enters a room and switches them off after the last person leaves.

5. The lights in some rooms have been wired to time clocks. These measures have resulted in a 50% reduction in daytime lighting in dormitories.

6. New USF campus buildings will be constructed incorporating state-of-the-art wall and roof insulation. Kendrick Hall Addition, the most recent campus building, has already been constructed in this manner.

7. Conversation with Alan Pryor, Calfiornia Energy Investment Corporation, November 26, 1984. Estimate of consumption decrease is based on approximate natural gas consumption per student and known energy production of solar panels.

B. Air Quality

The project site is within the nine-county San Francisco Bay Area Air Basin which is designated by the California Air Resources Board (CARB) as a non-attainment area[1] for ozone and carbon monoxide (CO).[2] The City and County of San Francisco is now an attainment area[1] for total suspended particulates (TSP).[2] As required by the Federal Clean Air Act Amendments of 1977, a regional Air Quality Plan has been adopted which establishes control strategies to attain and maintain various standards by 1987.[3] These strategies include stationary and mobile source emission controls and transportation improvements to be implemented by the Bay Area Air Quality Management District (BAAQMD), Metropolitan Transportation Commission (MTC), and the CARB.

The BAAQMD operates an air quality monitoring station at 939 Ellis St., approximately two miles east of the site. A three-year summary of the data collected and the corresponding ambient air quality standards are shown in Appendix B, p. A-23. These data show occasional excesses of the ozone, CO

and TSP standards.

Air pollutant concentrations in San Francisco, while exhibiting fluctuations due to variations in weather, have shown an overall improvement since 1969, despite increased population and industrial development.[4] San Francisco's air quality, in general, is the least degraded of all the developed portions of the Bay Area. Because of the prevailing westerly and northwesterly winds, San Francisco is more a generator of its own air quality problems (especially CO and TSP) and a contributor to those in other parts of the Bay Area (especially ozone) than a recipient of pollutants from elsewhere. CO and TSP concentrations reflect local emission sources; concentrations are highest at the source and decrease as the pollutants are dispersed by wind. In contrast, ozone is not directly emitted but is a secondary pollutant formed in the atmosphere by a complex series of photochemical reactions involving emitted hydrocarbons and nitrogen oxides. Ozone air pollution is thus a regional phenomenon because the precursor pollutants are carried downwind as the reaction process occurs.

NOTES - Air Quality

1. A nonattainment area is one in which the federal ambient air quality standard for a designated pollutant has been exceeded within the past two or three years. An attainment area is one in which the federal ambient air quality standard for a designated pollutant has not been exceeded within the past two or three years.

2. Sally Friedman, Planner, BAAQMD, June 1981,p. 35.

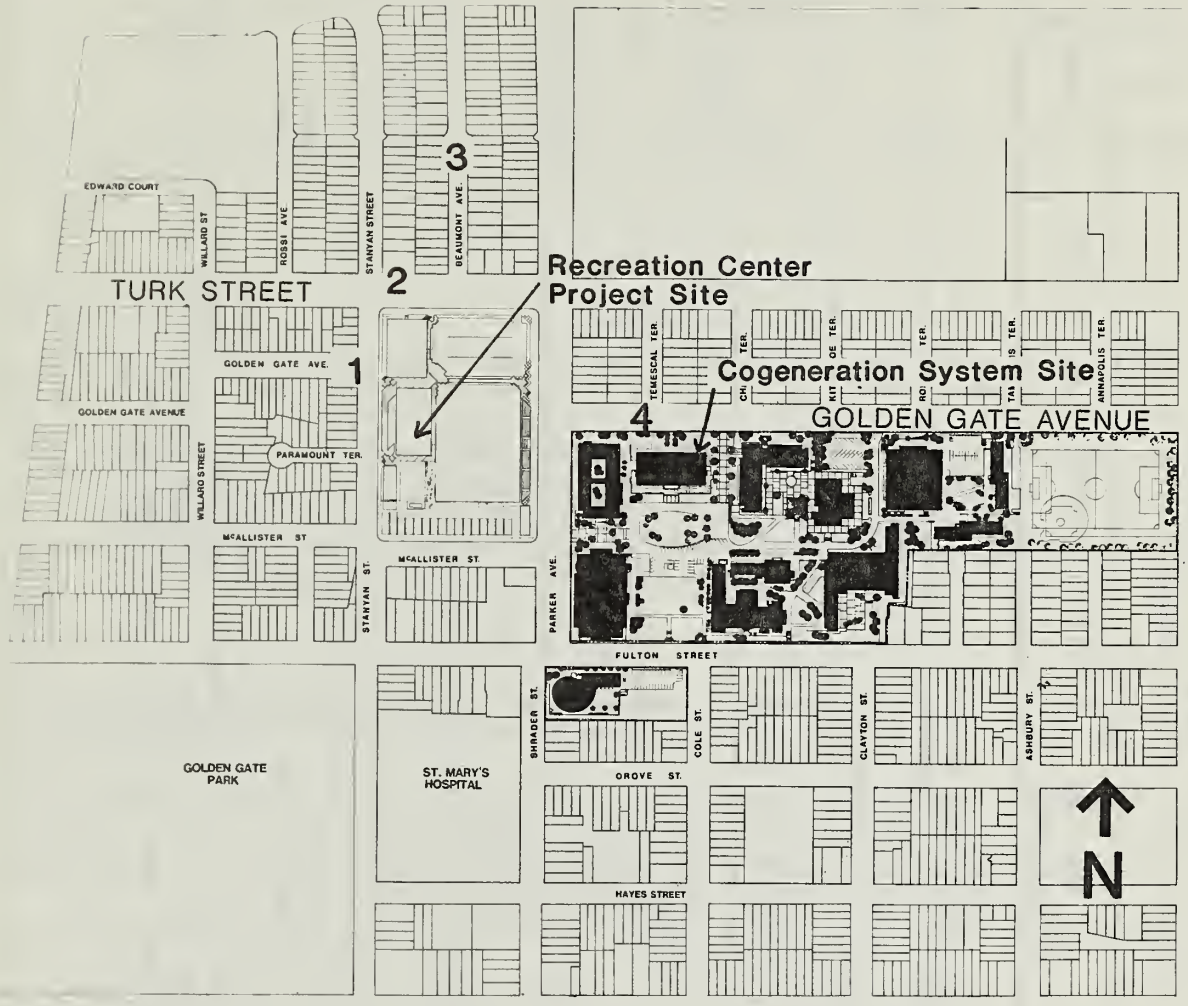
3. Association of Bay Area Governments (ABAG), BAAQMD, and Metropolitan Transportation Commission, 1982, Bay Area Air Quality Plan, December, 1982.

4. 1981-1982 Air Quality Handbook, BAAQMD, June 1981, p. 35.

C. Noise

The existing noise environment in the vicinity of the proposed Health and Recreation Center is dominated by traffic noise from Stanyan and Turk Sts. To determine existing sound levels in the vicinity of these homes, measurements were made at four locations over a two day period between a Wednesday morning and a Thursday afternoon[1] (see Figure 11, p. 38). Each of the four sites was visited twice and the measurements at each site were made during the morning and afternoon (see Table 2, p. 39). In addition to these spot measurements, a continuous 24-hour noise measurement was made at location number 3. The purpose of this noise measurement was to establish the background noise level during the evening and nighttime hours in this area. Data from the continuous measurement indicate that the background noise level, L_{90}, defined as the noise level equalled or exceeded 90% of the time, ranges from 38 to 47 dBA[2] between the hours of 10:00 PM and 7:00 AM. The quietest time of the night was between 4:00 AM and 5:00 AM, with an L_{90} of 38 dBA during this hour. During the daytime, the background sound level rises as the activity level increases. The highest background sound level of 47 dBA was during the daytime at measurement location 3.

The existing noise environment in the vicinity of the proposed Cogeneration System is dominated by traffic noise from Golden Gate Ave. and campus and neighborhood sounds. Measurements taken at the fourth location indicated in Figure 11, p. 38, reflect the existing noise environment of the residential development across Golden Gate Ave. from Gleeson Library. Nighttime background, or minimum moise levels of the Cogeneration System site area, fell within the same range as those measured in the vicinity of the Health and Recreation Center site. Daytime background noise levels range



SCALE: 1"= 600'

FIGURE 11

NOISE MEASUREMENT LOCATIONS (1-4)

USF HEALTH AND RECREATION CENTER and COGENERATION SYSTEM

SOURCE: Bendix Environmental Research, Inc. and Pflueger Architects

Table 2: Noise Measurement Results*

Site No.	Location	Day and Time of Measurement	L_{eq}**	L_{10}***	L_{50}	L_{90}	Comment
1	On sidewalk of Stanyan between Golden Gate and Paramount across from USF	5/30/84 9:57 AM-10:15 AM	63	64	60	52	Truck 76-81 dBA
		5/31/84 2:55 PM-3:10 PM	66	70	64	55	
2	On sidewalk of Turk between Stanyan and Beaumont 30 ft. from center of near lane of Turk	5/30/84 10:20 AM-10:35 AM	67	69	63	58	Buses in each direction 74-82 dBA
		5/31/84 3:18 PM-3:35 PM	71	72	64	58	
3	On sidewalk at 172 Beaumont 250 ft. from center of near lane of Turk	5/30/84 10:45 AM-11:00 AM	58	61	54	46	Noise primarily from Turk St.
		5/31/84 3:37 PM-3:52 PM	58	60	54	48	
4	Adjacent to site of Cogeneration System on Golden Gate, 30 ft. from center of near lane	5/30/84 11:10 AM-11:25 AM	58	62	55	52	Motorcycle 68 dBA
		5/31/84 4:07 PM-4:22 PM	55	58	52	49	Students milling around

* See Figure 10, p. 36 for the locations where the measurements are taken. All measurements are in dBA.
** The L_{eq} is the equivalent steady state sound level which, in a stated period of time, has the same acoustic energy as the time-varying sound level during the same time period.
*** The sound level in dBA that was equaled or exceeded 10% of the time; L_{50} and L_{90} are the levels equaled or exceeded 50 and 90% of the time, respectively.

Source: Charles M. Salter Associates, Inc., and Bendix Environmental Research, Inc.

from 50-55 dBA, with sound levels exceeding this range 90% of the time. During the measurement survey, the existing boiler plant located beneath Gleeson Library was not audible across Golden Gate Ave. For a further explanation of noise levels and noise terminology see Appendix C, pp. A-24 to A-27.

NOTES - Noise

1. Measurements made by Charles Salter Associates, acoustical consultants, on May 30 and 31, 1984.

2. Decibel (dB) = A logarithmic unit of sound intensity. Sound waves traveling onward from a source exert a force known as sound pressure level (commonly called "sound level"), measured in decibels.
   dBA = Decibel corrected for the variation in frequency response of the typical human ear at commonly encountered noise levels.

D. Transportation, Circulation and Parking

The Health and Recreation Center project site is bounded on the west by Stanyan St., on the south by McAllister St., on the east by Parker Ave. and on the north by Turk St. All of these streets are two-lane, two-way, residential avenues with the exception of Turk St. which has two lanes in each direction for a total of four lanes.

The Cogeneration System site is located in the central campus area, which is bounded on the west by Parker Ave., on the south by Fulton St., on the east by Masonic Ave. and on the north by Golden Gate Ave. Fulton St. and Masonic Ave. have four lanes, two lanes in each direction. Golden Gate and Parker Aves. have two lanes, one lane in each direction.

Three parking lots are on the Health and Recreation Center site: 31 spaces fronting Stanyan St. near McAllister St., west of Loyola Gym; 49 spaces at the corner of Stanyan and Turk Sts., and 105 spaces at the corner of Turk

St. and Parker Ave. (see Figure 12, p. 42).

MUNI routes within 2000 ft. of the project sites are, in the east-west direction: 31 Balboa and 31BX Balboa express, boarded on Turk St.; 5 Fulton boarded on Fulton St., 21 Hayes, boarded on Fulton St. at Stanyan St.; and the 38 Geary and 38L, 38AX and 38BX (expresses), which are boarded on Geary St. The only north-south transit line in the site vicinity is the 43 Masonic, boarded on Masonic Ave. on the east side of campus. Lines 5, 31 and 38 operate 24 hours per day.

E. Land Use and Zoning

The proposed Health and Recreation Center site is located on Lots 1 and 1B in Assessor's Block 1144, which is bounded by McAllister St., Turk St., Stanyan St. and Parker Ave.. Parker Ave. separates the 307,000 sq. ft. Health and Recreation Center site from the remainder of the 19.5 acre USF campus. This site is currently occupied by Negoesco Soccer Field, Loyola Hall, Loyola Gym and three parking lots. (see Figure 12, p. 42).

The block has a natural slope of 20 ft. downhill from the McAllister St./ Parker Ave corner to the Turk St./Stanyan St. corner. The block's topography has been rearranged, however, to provide flat surfaces (for the soccer field and other uses) and now consists of two levels on either side of a 22 ft. high retaining wall, which runs parallel to, and just east of, Loyola Hall. The upper level contains the existing soccer field area (130,000 sq. ft.) and the Turk St./Parker Ave. parking lot (38,000 sq. ft.). The lower level is about 137,000 sq. ft. and contains the two existing buildings and the two smaller parking lots. Loyola Gym (about 12,400 sq. ft.) is used primarily for intramural sport and recreational activities. Loyola

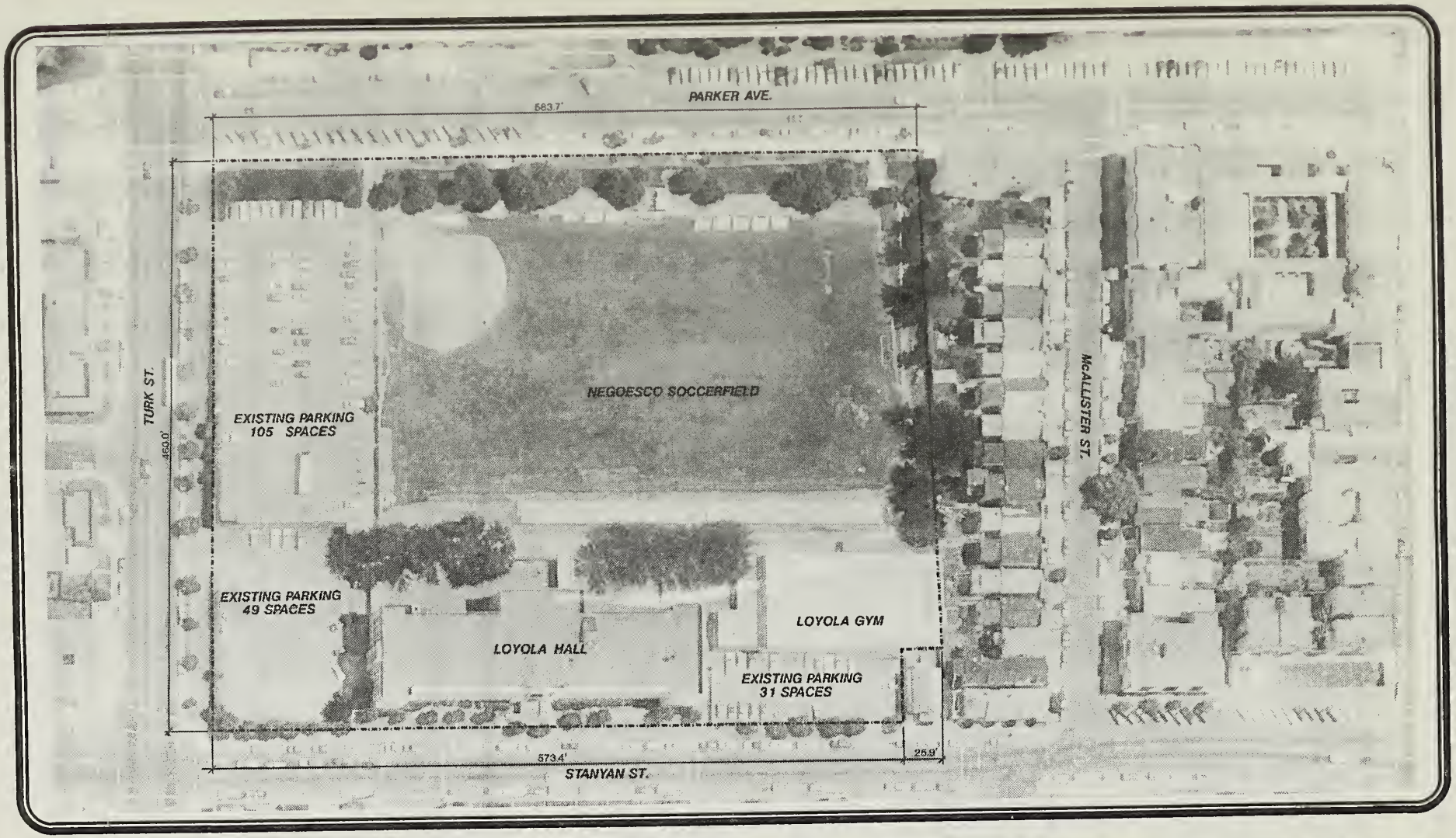


FIGURE 12

←N

SITE PHOTO
USF HEALTH AND RECREATION CENTER

Source: Bendix Environmental Research, Inc. and Pflueger Architects

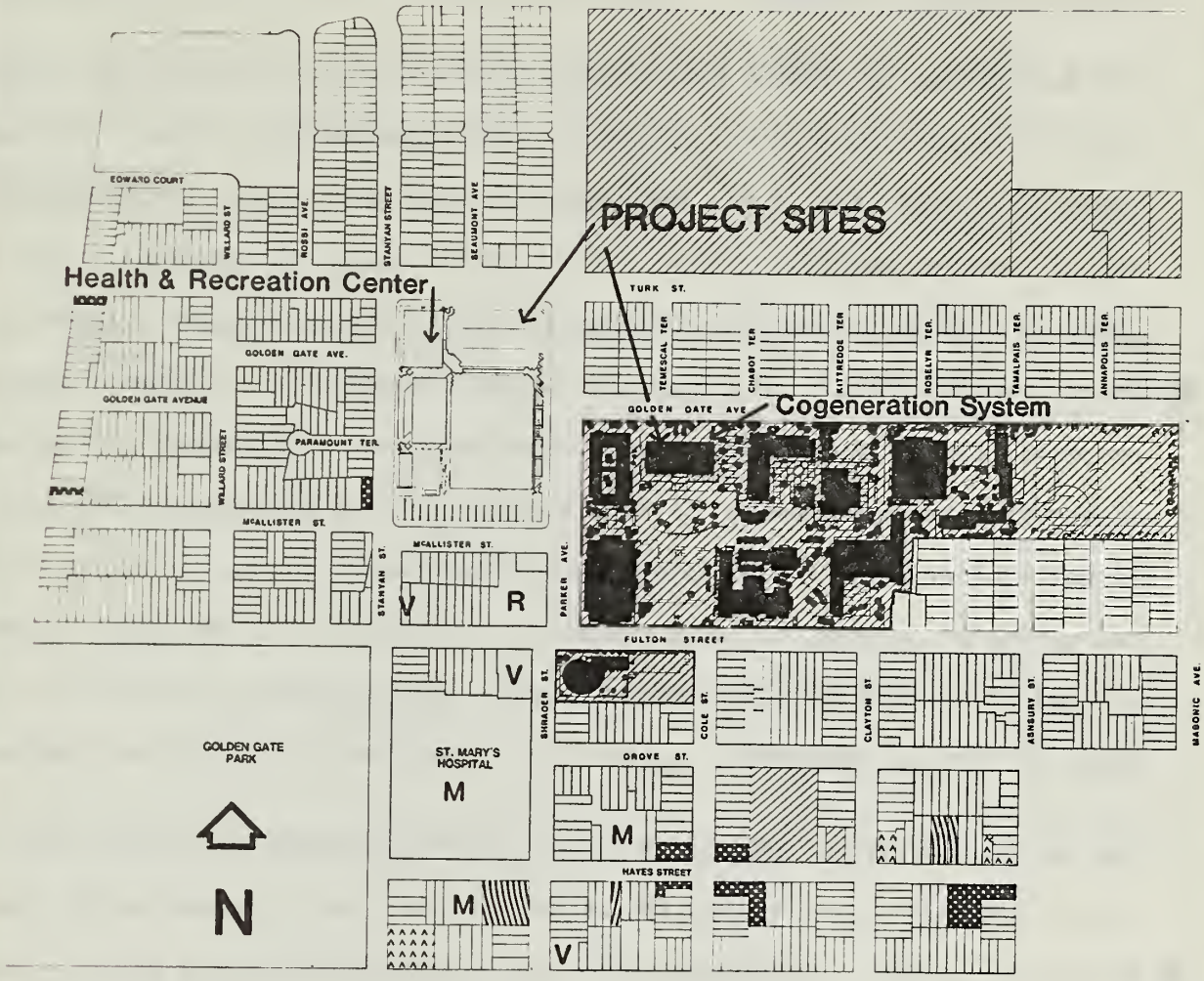
SCALE: 1"=120'

Hall contains 91,000 sq. ft. of classroom and office space. The two parking lots on this level occupy about 26,000 sq. ft..

Land uses surrounding the Health and Recreation Center site are predominantly residential. The four adjacent streets (Stanyan, Turk and McAllister Sts. and Parker Ave.) are lined by single family homes and multi-unit dwellings. The southern edge of the project block is lined with non-University-owned residences which front McAllister St. Their backyard areas and a 5 ft. wide pedestrian walkway separate these residences from the soccer field and the southern face of Loyola Gym. Xavier Hall, the University Jesuit residence, is across from the soccer field on the east side of Parker Ave. The Twilight Cafe/Deli on the corner of Stanyan and McAllister Sts. is the one non-residential use adjacent to the site. The nearest mixed commercial/residential units in the surrounding area are approximately four block north, three blocks west, and three blocks south of the project blocks (see Figure 13, p. 44.

The proposed Cogeneration System would be located in the basement of Gleeson Library, in the northwestern corner of Lot 1 in Assessor's Block 1145. The Gleeson basement is now occupied by the University's central steam heating plant.

The Cogeneration System project site is located on the main University campus and fronts Golden Gate Ave. roughly between its intersections with Temescal Terrace and Chabot Terrace. Closest to the Cogeneration site are two-unit dwellings across Golden Gate Ave in the University Terrace neighborhood between Lone Mountain Campus and the main University campus. University uses immediately surrounding the Cogeneration site are Xavier Hall, adjacent to the library on the west, and Harney Hall, immediately



LEGEND

FIGURE 13

LAND USE MAP

USF HEALTH AND RECREATION CENTER and COGENERATION SYSTEM

- RESIDENTIAL
- EDUCATIONAL
- COMMERCIAL/ RESIDENTIAL
- R RELIGIOUS
- COMMERCIAL
- PUBLIC AND PRIVATE PARKING
- M MEDICAL
- V VACANT LOT

SOURCE: Bendix Environmental Research, Inc., and Pflueger Architects

SCALE: 1" = 500'

east of Gleeson Library.

St. Mary's Hospital is two blocks south of the Health and Recreation Center project site and two blocks southwest of the Cogeneration System site (see Figure 2, p. 14), and is the owner of the vacant site at the southwest corner of Shrader and Fulton Sts. The hospital plans to construct a 6-1/2 story medical office building (including five levels of underground parking) on the vacant site.[1] The proposed project together with other proposed projects (Cannes apartments; Kezar Stadium reuse; St Joseph's Hospital conversion into apartments; St Mary's Medical Office Building; UCSF Vision Research Laboratory; UCSF conversion of Polytechnic High School to housing, recreation or parking or other reuse of this site; and the Urban School expansion) has led to neighborhood concern about potential cumulative impacts on the neighborhood, particularly increased institutionalization.

The two project blocks are within an RH-2 (House, Two Family) district, which is the prevalent zoning classification for the area surrounding USF (See Figure 14, p. 46). Exceptions to this classification are two areas: one, directly west of the Health and Recreation Center site on Stanyan St., is within an RH-1 (House, One Family), district and the other area is an RM-1 (Mixed Residential, Low Density) district. Institutional uses, such as USF, may be permitted as conditional uses in RH-2 districts, and are required to keep a current institutional master plan on file with the Department of City Planning.

The majority of the Health and Recreation Center project block is in a 40-X Height and Bulk District in which the maximum permitted height is 40 ft. (see Figure 15, p. 47). The southern portion of the soccer field and the southeastern border of the Health and Recreation Center site plus the Co-

generation System site are in an 80-D Height and Bulk District where the maximum permitted height is 80 ft. and maximum length and diagonal dimensions, applicable to building bulk above 40 ft., are 110 ft. and 140 ft. respectively.

NOTES - Land Use and Zoning

1. Robert Rhine, Sedway-Cooke (EIR consultants to St. Mary's), telephone conversation, October 1983.

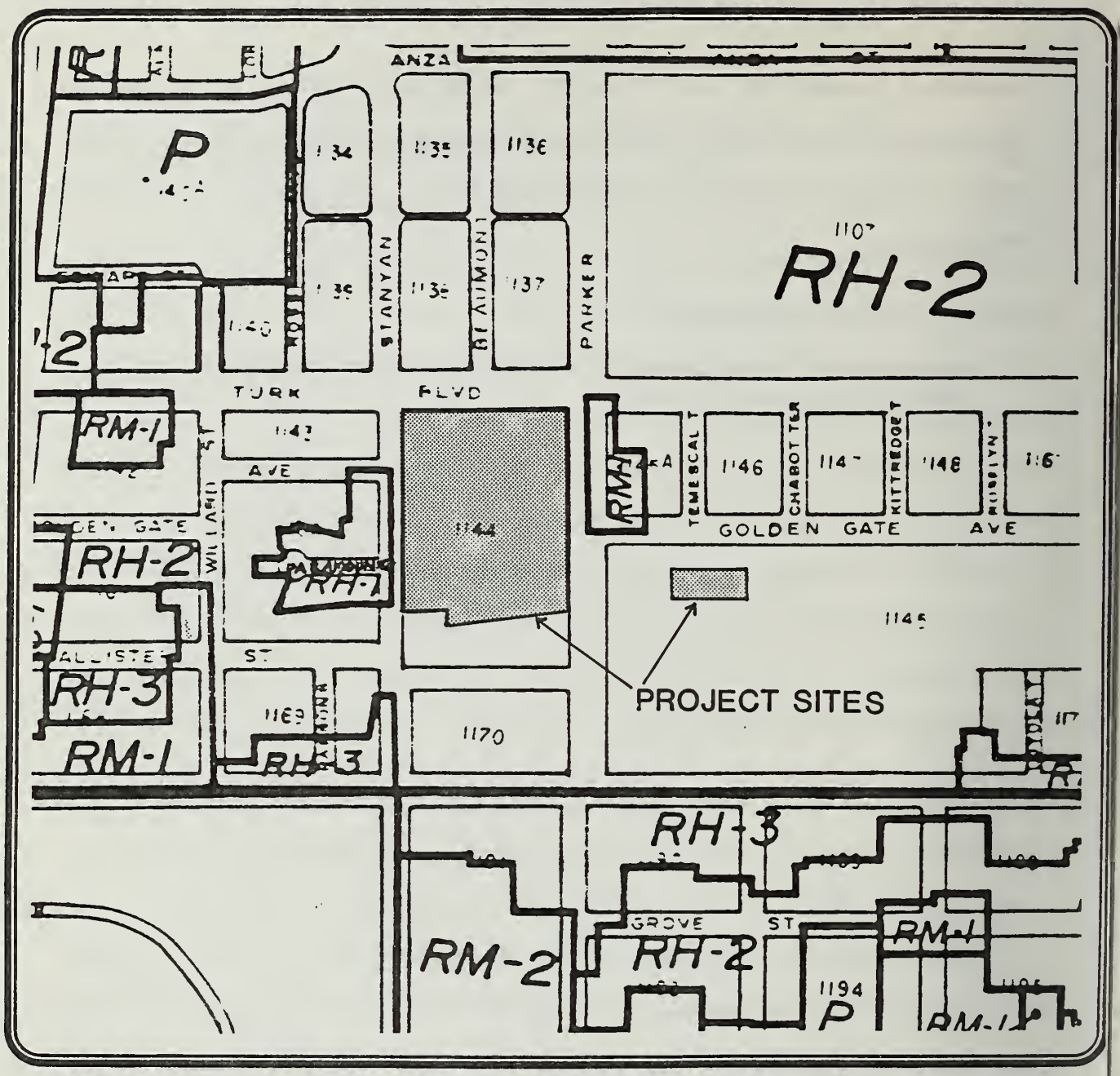


FIGURE 14

ZONING MAP

USF HEALTH AND RECREATION CENTER and COGENERATION SYSTEM

Source: Enlarged Photo of the City Zoning Map

ZONING CODES

RC-1	RESIDENTIAL - COMMERCIAL
C-1	NEIGHBORHOOD SHOPPING
P	PUBLIC USE
RH-1	RESIDENTIAL, HOUSE - ONE FAMILY
RH-2	RESIDENTIAL, HOUSE - TWO FAMILY
RH-3	RESIDENTIAL, HOUSE - THREE FAMILY
RM-1	RESIDENTIAL MIXED - LOW DENSITY
RM-3	RESIDENTIAL MIXED - MEDIUM DENSITY

SCALE: 1"-500'

PROJECT SITE

N

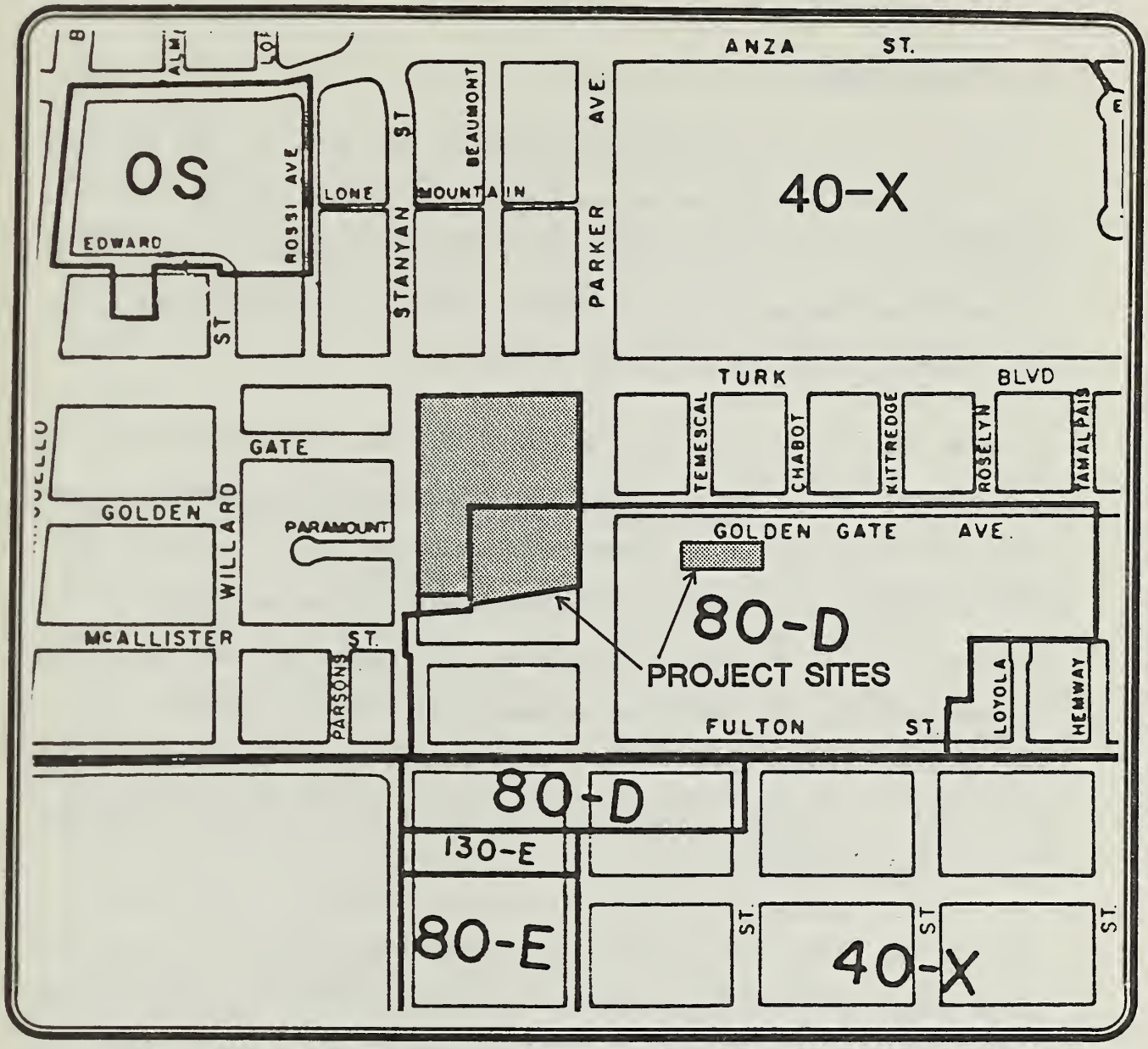


FIGURE 15

SCALE 1"=500'

PROJECT SITES

HEIGHT AND BULK DISTRICT MAP

OS OPEN SPACE DISTRICT

USF HEALTH AND RECREATION CENTER and COGENERATION SYSTEM

NUMBERS ARE HEIGHT LIMITS IN FEET

LETTER SYMBOLS REFER TO BULK LIMITS IN CITY PLANNING CODE SEC. 270.

00-Z

N

Source: Enlarged Photo of the City Height and Bulk District Map

F. Visual Quality

The project sites are located in a residential area with one, two and three story structures as the predominant surrounding visual features. The University's cluster of large institutional structures stands to the east of the Health and Recreation Center site and envelopes the Cogeneration System site (Gleeson Library) on all sides but the north.

Views of the existing facilities at the Health and Recreation Center site from each of the surrounding streets differ. Looking west from the upper story levels of the row of homes along Parker Ave. and from Xavier Hall, the open expanse of the soccer field and parking lots is set against a distant row of 60-75 ft. tall cypress trees with Loyola Hall and Gym as the western backdrop. Th view to the northwest drifts off over residential rooftops towards Lincoln Park. From the pedestrian level along Parker Ave. views west are somewhat obstructed by 20-30 ft. trees and shrubbery which line the sidewalk.

Views to the north from the rear of the residences facing McAllister St. are screened partially by juniper and pine trees (20-30 ft. tall) located between the houses and the soccer field. Some of the residences have partial views of the tops of Loyola Gym and Loyola Hall while others look across the length of the soccer field.

Residences along Stanyan and Turk Sts. have short range views of the existing buildings on the site through a sparse row of trees (about 15-20 ft. high) and shrubbery lining the north and west sidewalks of the Health and Recreation Center site block. Two parking lots along Turk St. are visible to some of these residences, separated by a chain-link fence and sparse, low shrubs.

The rooftop location on Gleeson Library, where the Cogeneration System's radiator unit (its only external component) would be built under an existing canopy, is largely obscured from off-site short-range views because of the library's height and the canopy's setback from the building's parapet. Viewed from a higher vantage point, such as the Lone Mountain campus, the roof of the library and its rooftop mechanical structures are visible.

G. Historic, Architectural and Cultural Resources

The University of San Francisco, formerly known as St. Ignatius College, was destroyed by fire in April, 1906. The school was rebuilt at its present location in 1910.[1] When the California Jesuit Mission made its initial property acquisition in the project area, this section of the City was still largely undeveloped. The City's four cemeteries were located to the immediate north and sand dunes were the predominant landscape feature west of Parker Ave. Few homes had been built west of Stanyan St.

Construction of the Administration building, the College of Liberal Arts and St. Ignatius High School took place between 1921-1929. The College of Fine Arts was built in 1931.[1] USF experienced its greatest growth between 1950 and 1969, with the construction of ten buildings to accommodate increases in student body population. St. Ignatius High School, built in 1928, and the Gymnasium, built in 1951, became what are now Loyola Hall and Loyola Gym after the High School vacated these buildings and established a new location in the Sunset District in 1968. Shortly thereafter USF acquired the High School Property.

St. Ignatius Church, located to the southeast of the proposed Health and Recreation Center site block, and southwest of the Cogeneration System site, is the only structure on the campus and contiguous properties to receive recognition for architectural merit. This building was rated "5" (Extraordinary) in the Department of City Planning's Architectural Survey, with special emphasis given to its importance as a visual focal point in the cityscape.[2]

NOTES - Historic Resources

1. L.F. Byington, ed., The History of San Francisco, vol. III, The S.J. Clarke Publishing Co., Chicago and San Francisco, 1931, p. 278.
2. Department of City Planning, Architectural Survey, 1974.

H. Geology/Topography

The Health and Recreation Center project site consists of land that has been leveled for the soccer field, Loyola Hall and Loyola Gym. Soils studies were undertaken at the soccer field in September, 1981. The surface soils of the site consist of Dune Sands to a depth of 10-20 ft.[1] Sandy clays, silty clays and weathered bedrock underlie and are mixed within dune sands. Beneath this material lies fractured Franciscan bedrock,[2] sandstone, and shale that slopes to the southeast.[3] This material is considered to have good stability under earthquake conditions.[4]

Installation of the proposed Cogeneration System would require some excavation underneath the basement floor within the existing Gleeson Library structure. Soils underlying the library are similar to those beneath the Health and Recreation Center site except that they were disturbed more recently when Gleeson library was constructed.

The closest active earthquake faults to the proposed sites are the San Andreas Fault, approximately 6 mi. southwest of the sites, and the Hayward Fault, approximately 13 mi. to the northeast.[5] Both of these faults have a recent history of major and minor movements and their continued activity can be expected to affect the project site and the rest of the city.

NOTES - Geology/Topography

1. Lee and Praszker, Foundation Investigation, Loyola Field, University of San Francisco, California, September 1981, 14 pp.
2. Franciscan bedrock = a mixture of red, green and brown cherts (rocks composed of silica) and lava flows of basalt.
3. Lee and Praszker, Evaluation of Soils and Soil Strength Parameters in Conjunction with Proposed Addition to Kendrick Hall, University of San Francisco, California, March 1981, p. 3.
4. URS/John A. Blume & Associates, San Francisco Seismic Safety Investigation, June 1974.
5. California Division of Mines and Geology, Geologic Map of California, San Francisco Sheet, 1961, scale 1:250,000.

I. Biology

Vegetation on the Health and Recreation Center project site consists of cypress, juniper and broom. The trees vary in height, the tallest being the 70-75 ft. tall cypresses west of the soccer field. Other vegetation in the area consists of grasses and volunteer[1] herbaceous plants typical of disturbed areas. The Cogeneration System site block is dotted with landscaped areas, planters and trees of similar species. Based on data from nearby Golden Gate Park, 61 bird species could potentially visit the project sites; however, these species would be more likely to frequent the Park, as it is a larger and more diverse habitat.[2]

Mammals which could be found at the sites include various rodents, such as field mice, gophers, squirrels and wood rats. Animals from Golden Gate Park, such as skunk, raccoon, feral cats and dogs, might also be expected

to visit the site.[3] No endangered species of plant or animal are known to exist on the proposed sites. For further details on biotic setting see the Initial Study for the proposed project, pp. A-1 to A-22 of this EIR.

NOTES - Biology

1. volunteer = not deliberately planted.
2. Dr. Booker Holton, Report on Biological Resources at USF, August 1983.
3. Dr. Booker Holton, Biological Resources Consultant, telephone conversation, August 26, 1983.

CHAPTER IV. ENVIRONMENTAL IMPACTS

On the basis of the Initial Study for a proposed 9.5 mW cogeneration project, published November 1983, it was determined that an Environmental Impact Report (EIR) was required. Impacts mitigated to a level of insignificance and those with insignificant effects were focused out of the EIR. They were: biology, cultural resources, cumulative land use, population/employment, seismic, transportation/circulation, and utilities/public services impacts. After the Initial Study was published, a Health and Recreation Center was proposed and added into this EIR. Later, as a result of discussions with both neighborhood groups and the University community, the 9.5 mW Cogeneration facility was deemed an inappropriate use on campus and a smaller 1.8 mW system was proposed as a replacement for two aging boilers in the campus steam plant. This latest proposal would not seek to sell power for profit; rather it would supply just the electrical and steam demands of the University. Although the other above listed impacts remain focused out of this EIR, the scope of population/employment, utilities/public services, geology, water quality, biology and cultural impacts has changed somewhat due to the addition of the Recreation Center; these changes are discussed below. Transportation/circulation impacts for the Recreation Center have been added into this EIR as well.

Population: The Health and Recreation Center portion of the project would provide five full-time jobs. In addition to these full-time jobs, about 30 part-time jobs could be occupied by students per semester. About 150 person-years of construction labor would be provided during the approximately 18-

month construction period. The project would not induce substantial growth or concentration of people, displace a large number of people or create a substantial demand for housing.

Utilities/public services, Water quality: The project would increase demand for utilities and public services. The Health and Recreation Center would use water for the swimming pool and showers. Water would be supplied to the Recreation Center through existing mains that would not require any modification. No expansion of existing sewage facilities would be required to serve the proposed Recreation Center. The gas main serving the Cogeneration site may have to be enlarged (see p. 58-A).

Geology: Soils underlying the Health and Recreation Center site are considered to have good stability under earthquake conditions.[1] The project sponsor would obtain a site-specific soils report from a California licensed soils engineer and would construct the project in accordance with the recommendations of this report.

Biology: Cypress trees growing between the west edge of the soccer field and the east side of Loyola Hall and Loyola Gym would be removed before construction of the proposed Recreation Center. After construction is completed, new landscaping would be planted along this corridor. Landscaping would also be planted along Stanyan St., within the parking lot and around the soccer field (see Figure 6, p. 21).

Cultural: Since the Recreation Center site was disturbed during construction of Loyola Hall and Loyola Gym, it is unlikely that archeological resources are present at the site. However, if any archeological resources were found on the site during construction, the project sponsor has agreed to the mitigation measure on p. 93.

Fiscal: The Initial Study for the 9.5 mW facility stated that the EIR would contain a discussion of impacts of project financing on USF. Because the originally proposed 9.5 mW project has been down-scaled to a 1.8 mW steam replacement system that would only produce enough heat and power for the University's consumption, a discussion of fiscal effects has been omitted.

In the spring of 1984, due to neighborhood concern over several projects proposed for the Greater Haight Ashbury Area, the Department of City Planning undertook a report to provide an overview of cumulative impacts of all the projects proposed.[2] Projects covered in this report, in addition to those proposed by USF, are: St. Mary's Medical Office Building, Cannes Apartments, Urban School of San Francisco Expansion, Polytechnic High School Conversion, St. Joseph's Hospital Conversion (Park Hill Residential), and the UCSF Vision Research Module. Cumulative Impacts, where applicable, are discussed at the end of each section in this chapter.

NOTES - Impacts

1. URS/John A. Blume & Associates, San Francisco Seismic Safety Investigation, June 1974.
2. Greater Haight-Ashbury Cumulative Assessment Report, December 21, 1984. Available at the Department of City Planning, 450 McAllister St., 5th Floor, San Francisco, CA 94102.

A. Energy

Regional Energy Impacts

The Cogeneration System, in producing both electrical and thermal energy, would consume more natural gas than is currently required at USF to produce steam alone, however, the total fuel required to produce electric and

thermal energy in the cogeneration system would be less than the total fuel required to produce the same amount of power and heat in separate systems, resulting in a net decrease in fuel use in the region. Generation of electricity at USF would reduce the amount of electricity PG&E would need to produce. Approximately 1,800 barrels of oil per year would be saved as a result of operation of this cogeneration facility.[1] Production of electricity by this and other cogeneration facilities might, by satisfying local power demands, help to postpone construction of new PG&E power plants needed to meet increasing demand. PG&E estimates that operating and planned cogeneration projects with which they have contracts or commitments are capable of generating over 700,000 kW, which is more than enough power to serve a city the size of Oakland.[2]

Additional energy savings would be realized through the use of power produced at USF rather than electricity generated by PG&E far from San Francisco. Power generated outside San Francisco is subject to greater transmission losses[3] en route to its point of use in the City than locally produced power.

The Public Utilities Regulatory Policy Act (PURPA) requires PG&E and other utilities to purchase locally produced power at a rate comparable to the incremental cost saved by the utility not generating the power itself (the utility's "avoided cost"). This avoided cost includes the cost of power production at existing facilities and the potential cost of power production at plants which would be constructed to meet regional increases in power demand. PG&E would therefore purchase energy at an avoided cost rate from the proposed Cogeneration System when the system produces more electricity than can be used by the University.

Steam

- The Cogeneration System would produce 35-50 psi steam, which would provide for the average demand of existing buildings heated by the present boilers and of the new Recreation Center minus one percent. On cold winter mornings, the new plant's capacity would not be sufficient, and one or more backup boilers would have to be used to provide additional steam heat.[3a]

- Demand for steam to heat USF campus buildings varies on a daily and seasonal basis. The present Gleeson Library system operates about 16 hrs/day, from 6 AM to 10 PM. The existing boilers in individual buildings operate 24 hrs/day. Annual campus steam demand average is approximately 420,000 therms/year, supplied approximately half by the Gleeson Library boilers and half by the other boilers. The Recreation Center would increase average demand to 482,000 therm/year. The cogeneration facility would produce an average of 478,000 therms/year., one percent less than the average demand.

- See Table 2A, page 57-B, for a summary of steam demand and use characteristics with and without the project. The cogeneration system would operate at or near capacity for about 16 hours a day, from 6 AM to 10 PM, and at a lower level or not at all for the rest of the night, depending on the steam requirements for heating dormitories or swimming pool water. Steam cannot be generated and stored for use at another time. Energy conservation programs at USF have reduced steam demand below the cited demand figures; new consumption figures are not yet available.

- If additional buildings described in the Institutional Master Plan were to be built on the main campus, a small amount of additional steam to partially supply these buildings could be generated by operating the system at capacity

for a full 16 hours on days when this would not otherwise occur. Operation 24-hours a day would not help to supply additional buildings because the extra steam would be generated at a time of day when there would be no use for it. Further implementation of the Institutional Master Plan would have to include additional steam production facilities, since the cogeneration system could not produce enough steam to heat several additional buildings. For a schematic representation of the relationship between steam demand and capacity see Figure 15A page 57-C. The Lone Mountain portion of the campus is too far from the main campus for efficient connection to the proposed cogeneration system and would continue to have independent steam generation provisions (the present Lone Mountain buildings have their own boilers for steam).

The Health and Recreation Center would be connected to the steam distribution system (see Figure 10, p. 28), and would use steam for space and water heating. Hot water would be used in locker rooms and to heat the swimming pool. When the Cogeneration System is not functioning, such as during maintenance, a conventional back up boiler would be used for the Recreation Center's space and water heating.

Table 2A. USF Steam Use and Production Characteristics With and Without the Proposed Project.

	Present	With Project
average daily demand, therms/day	1,150	1,320
maximum daily demand, therms/day	1,450	1,670
average annual demand, therms/yr	420,000	482,000
cogeneration average production, therms/day	n/a	1,310
cogeneration average production, therms/year	n/a	478,000
cogeneration average production as percent of average demand	n/a	99%
cogeneration maximum production, therms/day[1]	n/a	1,395
cogeneration daily maximum production, as percent of maximum demand	n/a	87%

1. Assuming a cold winter day with maximum heating load but not 24-hour full capacity operation since classrooms, library, etc. do not have to be heated all night.

Sources: Robert E. Fishman, P.E., FMC Engineers, cogeneration plant designers, and Bendix Environmental Research, Inc.

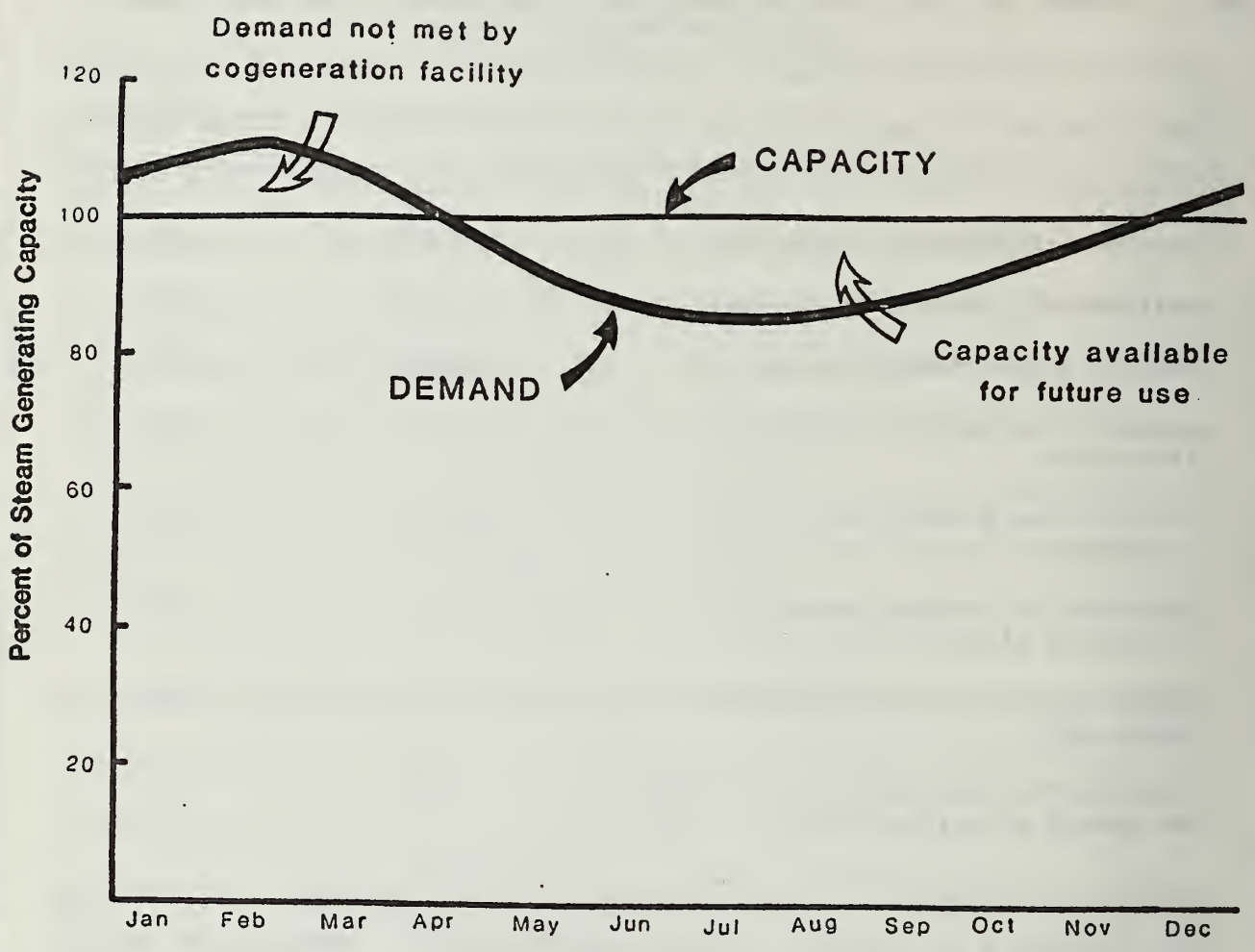


FIGURE 15A

SCHEMATIC REPRESENTATION OF HEATING DEMAND VERSUS CAPACITY

USF COGENERATION FACILITY

Source: Bendix Environmental Research, Inc.

Electricity

Electrical generation of the proposed Cogeneration System would be about 1,650 kW gross for 16 hrs./day. Net electrical production would be 1,500 kW. Based on average steam load, the gross annual electric output of the Cogeneration System would be about 12 million kWh. Maximum electricity consumption for operation of the Cogeneration System (radiator and other uses) would total about 600,000 kWh annually, resulting in a net annual output of approximately 11,400,000 kWh. Electrical consumption by the Cogeneration System would be fairly constant at about 1200 kWh./day throughout the year.

Campus electricity use was 9.2 million kWh in 1984 (not including Lone Mountain), which would be equivalent to about 74% of the 12.4 million kWh average net annual electrical output of the proposed plant. Annual demand from existing buildings is expected to increase to 11.5 million kWh as a result of the addition of computer equipment. The Recreation Center would increase demand by about 1.9 million kWh, bringing the average annual demand to 13.4 million kWh. There would be no net average electrical surplus if the Recreation Center were built: USF would buy a net annual average of 1.0 million kWh, 8% of campus demand, from PG&E. At certain times of year, when cold weather creates maximum steam heating demand, USF would generate more electricity than needed and the surplus would be sold to PG&E (an annual average of 0.9 million kWh). USF electrical use and production characteristics with and without the proposed project are shown in Table 2B, page 58-B and Figure 15B, page 58-C. If total Institutional Master Plan buildout were to take place, the annual average demand for electricity would increase. At cold times of year part of this increase could be met from electricity which would otherwise be sold to PG&E. Any

additional buildings would increase the annual average amount of electricity that would have to be purchased from PG&E.

Natural Gas

The Cogeneration System would result in a net increase in natural gas consumption by USF of approximately 225 therms/hr.[4]; about 1,700,000 therms/yr., as compared to natural gas use of 705,000 therms/yr. in 1982. If necessary, PG&E would enlarge the gas main supplying the site to accommodate this flow.[5]

Table 2B. USF Electrical Use and Production Characteristics With and Without the Proposed Project

	Present	With Project	
		Not Including Recreation Center	Including Recreation Center
annual average demand in million kilowatt-hours (kWh)	9.2[1]	11.5[2]	13.4
annual average gross cogeneration system production (million kWh)	n/a	12.9	12.9
annual average cogeneration system consumption (million kWh)	n/a	0.5	0.5
net average cogeneration system production (million kWh)	n/a	12.4	12.4
annual average surplus power available for sale (million kWh)	n/a	0.9	-1.0[3]
annual average surplus power available for sale as percent of net production	n/a	7%	-8%[3]

1. 1984 total campus use, not including Lone Mountain.

2. The increase in projected demand from existing buildings is due to anticipated installation of computers which use electricity and give off heat which creates electric air conditioning load.

3. Note that these negative figures represent deficits.

Sources: Robert E. Fishman, P.E., FMC Engineers, cogeneration plant designers, and Bendix Environmental Research, Inc.

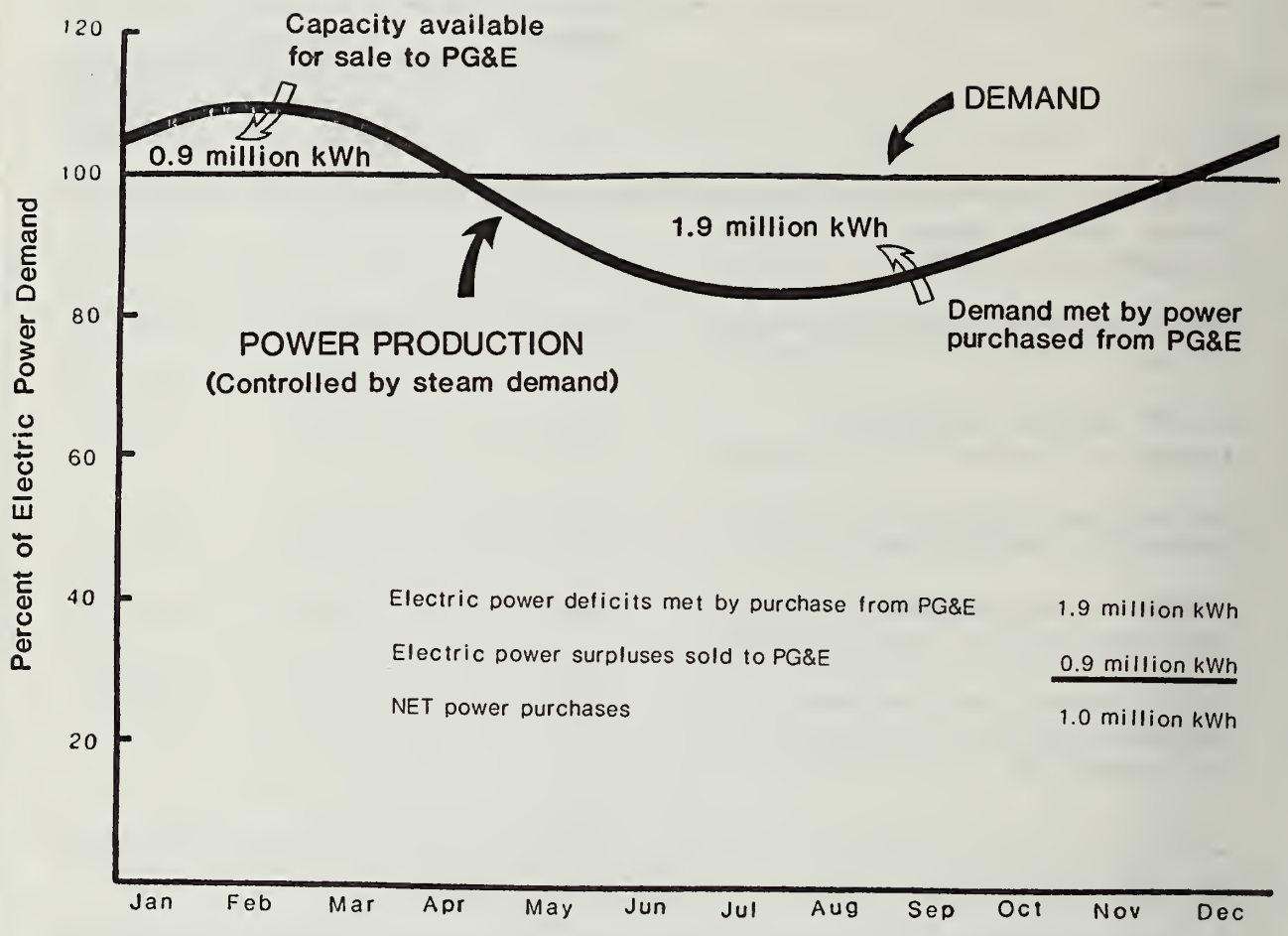


FIGURE 15B

SCHEMATIC REPRESENTATION OF ELECTRIC DEMAND VS. PRODUCTION

USF COGENERATION FACILITY

Source: Bendix Environmental Research,Inc.

For the proposed Health and Recreation Center, natural gas consumption would not be related to floor space. California Administrative Code Title 24 energy conservation standards for buildings would not apply to the Recreation Center project because the building would be supplied with less heat than the threshold value of 10 Btu/hr. per sq. ft.[6]

The probability of natural gas service interruption would be low. Cogeneration facilities, under the California Public Utilities Code, have "P-3A" priority for purchasing natural gas, which is a higher priority than that for utility and large commercial/industrial users and a lower priority than that for small commercial and residential users. In the event of a natural gas shortage, cogeneration facilities would be able to purchase natural gas when utility, industrial and large commercial customers with interruptible service (including gas-fired boilers) have their service curtailed.

PG&E expects adequate gas supplies to be available for the project lifetime and expects supplies for the next five years to be "extremely stable."[7] The Federal Office of Technology Assessment concludes "that substantial technical uncertainties prevent a reliable estimation of the likely natural gas production rates for later in this century".[8] There has been no interruption of natural gas service to a cogeneration facility on record, and there has been a "very low" incidence of interruption of natural gas service to PG&E customers with interruptible service.[7] Natural gas supply to the existing main steam plant at USF was interrupted for one day during the last five years, requiring use of backup fuel oil.

NOTES - Energy

1. "Each megawatt of electricity produced by cogeneration saves at least 1,000 barrels of oil a year." From: Gandara and Park, "Municipal Cogeneration", in California Energy Commission, Cogeneration in Muni-

cipalities: Proceedings from Workshops for Local Governments and Municipal Utilities, January 1982, pp. 8-9.

2. PG&E, PG&E Progress, October 1983, p. 2.

3. transmission loss = power lost during transmission of energy from one point to another along a power line; this loss is proportional to the length of the line.

3a. For up to 6 hours, from 6 AM to noon, for up to 90 days per year, depending on weather conditions.

4. Projected on the basis of current demand per sq. ft. of building.

5. Stuart Tartaglia, PG&E, Marketing Department, telephone conversation, 30 September 1983.

6. California Administrative Code, Title 24, Part 6, Article 2, "Energy Conservation Standards for New Non-residential Buildings," Division 4, T-20-1490B.

7. Sam Wells, Commercial Division, PG&E, telephone conversation, 9 September 1983.

8. Office of Technology Assessment, Congress of the United States, News Release, 22 September 1983, avaliable for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister St.

B. Air Quality

Emissions would be produced by two different project related sources: auto mobile traffic generated by the proposed Recreation Center and operation of the proposed Cogeneration System. The principal traffic generated emission, carbon monoxide (CO), would not be detectable either by direct sampling techniques or computer modeling because the increase in traffic volume generated by the Recreation Center would be negligible (see Section D, p. 72).

Operation of the Cogeneration System would involve the combustion of natural gas, yielding air pollutants as outlined in Table 3, p. 61. The pollutant composition of these emissions would not differ from that of the

existing boilers since both systems burn the same fuel. Of these pollutants, only nitrogen oxide (NO_x) emissions would be sufficient in quantity to trigger

TABLE 3. Air Pollutant Emissions

Pollutant	1987 Projected Regional Emissions[1] (tons/day)	Project Emissions[4,6] (tons/day)	PSD[3] Trigger Level[2] (tons/yr)	Project Emissions[4,6] (lbs/day)	BACT Trigger Level (lbs/day)	Percent of Regional Emissions
Nitrogen Oxides (NO_x)	692	0.10	40 (0.11 tons/day)	226	150	0.00016
Carbon Monoxide (CO)	3,367	0.17	100 (0.27 tons/day)	339	550	0.00005
Hydrocarbons (HC)	797	0.06	NA[5]	113	150	0.00008
Total Suspended Particulates (TSP)	192	0	25	0	150	0

1. Association of Bay Area Governments (ABAG, BAAQMD, MTC, Bay Area Air Quality Plan, 1982, p. 53. The region is the nine county Bay Area Air Quality Management District.
2. Trigger Levels = exceedence limits above which pollution controls must be used and permits are required.
3. Federal Regulations on Prevention of Significant Deterioration, 40 CFR 52.21.
4. Approximate values, provided by Robert Fishman, FMC Associates, Engineers, telephone conversation of August 12, 1985.
5. NA = not applicable because there is no federal standard.
6. These are worst case estimates, assuming 24-hour operation at full load; 24-hour operation is unlikely.

Source: BAAQMD Regulation 2, Rule 2 and Bendix Environmental Research, Inc.

a Bay Area Air Quality Management District (BAAQMD) requirement for use of Best Available Control Technology (BACT), which is the maximum degree of emissions reduction that a particular source can achieve (see Table 3, p. 61). BACT would be implemented by the project sponsor in the form of a lean burning (natural gas only) engine. Natural gas is the cleanest burning fossil fuel and it would not produce unusual or highly toxic products of combustion.

In order to obtain authorization to construct and operate the cogeneration system, the project sponsor would be required to comply with the applicable federal, state and regional air quality regulations, including the U. S. Clean Air Act and the BAAQMD Rules and Regulations (see p. 29). At the size proposed, and with BACT implemented, emissions from the project would represent 0.02 percent (0.0002) of the projected regional emissions for NO_x (the proposed project's worst emission) and would be within growth projections contained in the 1982 Bay Area Air Quality Plan.[1] The project, by complying with federal, state, and regional air pollution regulations which are designed to prevent impacts of air pollution on health, would not be expected to affect persons working or residing near the Cogeneration System, or patients of St. Mary's Hospital and Medical Center.

- New project emissions would be partially offset by the closure of the four existing 25-year old boilers at USF, thus terminating their air pollutant emissions. The BAAQMD would determine the amount of air pollutants elimi-
- nated by closure of the boilers during the process of granting permits for the new facility.

Project air pollutants would be discharged from the existing, 45 ft. high,
- boiler plant exhaust stack.

- The cooling process would produce a water vapor plume which might be visible on cool, damp days when droplets of water would condense due to the air's reduced ability to hold water vapor at lower temperatures; this vapor would be expected to dissipate quickly in prevailing winds.

- Excessive ground level concentrations of air pollutants emitted from stacks such as the one on Gleeson Library are sometimes caused by "downwash, wakes and eddies caused by nearby structures."[2] This type of air pollution is not expected; however, in order to insure that this would not occur the emissions of the cogeneration facility would be modeled and any changes in design required to meet the concerns of the BAAQMD would be made.[3]

Construction Air Quality Impacts

Construction activity would temporarily generate some air pollutants in the project vicinity. Construction equipment would release exhaust which could irritate people in neighboring buildings during construction hours. Site preparation and construction activities would intermittently cause dust and other particulate matter to become suspended in the air. Violations of the State 24-hour Total Suspended Particulates (TSP) standard might occur in the immediate vicinity of the project on these occasions. Mitigation for this impact has been proposed as part of the project. (see Chapter V., Mitigation Measures, p. 89).

Cumulative Air Quality Impacts

The USF projects would contribute to both aspects of cumulative emissions in the Greater Haight Ashbury: indirect traffic generated emissions, and direct heating emissions. The University projects' contribution to cumu-

lative indirect emissions would be negligible as vehicular trip generation for the two projects is small enough as to be imperceptible within the daily fluctuations of traffic.

The proposed cogeneration system would account for about 60% of the total cumulative increase in NO_x emissions, 10% of the projected cumulative CO

emissions, and about 40% of the cumulative direct and indirect hydrocarbon emissions. As discussed in the Greater Haight Ashbury Report, the levels of total cumulative increase are within growth projections and specific control measures contained in the 1982 Bay Area Air Quality Plan.

NOTES - Air Quality

1. ABAG, BAAQMD, MTC: 1982 Bay Area Air Quality Plan, 1982.
2. Federal Register: Vol. 47, No. 26, February 8, 1982
3. Should any increase in stack height be required it would be within the limits provided by the Planning Code.

C. Noise and Vibration[1]

There are three potential sources of noise associated with the Health and Recreation Center and the Cogeneration System: noise generated by activity at the Recreation Center (including traffic-generated noise), noise generated by the Cogeneration System and temporary noise generated during demolition and construction phases of the projects.

Health and Recreation Center

Noise which would be generated inside of the Recreation Center by intramural sports activities would not be audible in the adjacent neighborhood because of the intrinsic insulation of the building and the attenuation of noise over the distance to the nearest homes. Noise from activity on the soccer field would be at about the same level as noise generated by similar activities at present. Noise levels along streets (Parker Ave. and Turk St.) serving the Recreation Center would not be measurably increased by vehicles arriving at or leaving the proposed project. Traffic volumes would have to double during a given interval of time to raise the noise levels 3 dBA, and cause a perceptible change.2 As the increase in traffic volumes for the Recrea-

tion Center would be negligible (see Section D, p. 72) no transportation noise impacts associated with the Recreation Center would occur.

Cogeneration System

The Cogeneration System would be located beneath Gleeson Library in the existing Steam Plant (see Figure 8, p. 24), about 140 ft. from the nearest residences across Golden Gate Ave. The daytime ambient noise level (L_{90}) in the nearest residential area is 44-47 dBA and the minimum ambient noise level drops to 38 to 46 dBA during the night, depending on wind and traffic conditions (for existing background noise levels, see Table 2, p. 39). The minimum noise level occurs about 3-4 AM and is at the higher end of the nighttime range when there is wind, as typically occurs in the summer.

There are three criteria against which noise generated by this system may be assessed: noise emission limits contained in San Francisco Noise Ordinance No. 274-72; community response to potential increases in noise levels above background levels; and finally, activity interference criteria such as the potential for speech or sleep disturbance inside residences.

The San Francisco Noise Ordinance requires that noise levels not exceed 55 dBA outside of the nearest home during daytime hours (8:00 AM - 5:00 PM) or 50 dBA during nightime hours (10:00 PM to 7:00 AM).

Studies have shown that community response is directly related to the amount by which the new noise sources exceed typical existing levels in an area. The International Standards Organization reviewed the research on this subject and developed the following conclusions regarding community response:

differences of 5 dBA or less are of marginal significance. Complaints, however, may certainly be expected if the difference reaches 10 dBA or more. Activity interference criteria are based on studies that attempt to determine which noise levels will interfere with various activities. For a

worst case analysis of a facility that operates more or less continuously over a 24-hour period, the most stringent of these criteria is the potential for sleep interference. The United States Environmental Protection Agency has suggested that to protect against sleep disturbance for the great majority of the population, noise levels in bedrooms should not exceed 32 dBA. Allowing for the reduction of noise between outdoors and indoors, this equates to a level of 47 dBA outside, assuming that the windows in the bedrooms are open and that the bedrooms face the noise source.

Two of the existing boilers in the Gleeson Library basement would be replaced with a 1,500 kW engine generator. The exhaust from this unit would pass through a heat recovery boiler, then into a hospital-grade muffler and out through the existing exhaust stack on the Gleeson Library Building. A fan and radiator would be located on the roof of Gleeson Library to function similarly to an automobile radiator and vent excess engine heat. Preliminary analysis indicates that periods of maximum demand would typically be during the morning hours. However, because it is possible that the system would run at night, a worst case analysis has been performed assuming operation of both the engine generator and the radiator at nighttime.

When the sound level inside the boiler room was 73 dBA, the sound level outside the door to the boiler room was 65 dBA,[2a] the level directly in front of the louvers in the boiler room wall facing the homes opposite the boiler on Golden Gate Avenue was 50 dBA, the level outside of the homes across the street was 44 dBA, and the level inside Gleeson Library directly above the boilers was 40 dBA. For comparative purposes, the sound level of cars passing the homes across the street was 60 to 70 dBA.

The generator would be surrounded by a noise reducing enclosure (or shell)

which would reduce sound levels generated within the boiler room to the present level of about 75 dBA.[2b] Noise emanating from the boiler room would be inaudible in nearby residences both during daytime and nighttime hours.[2c]

- Noise generated by exhaust of the diesel engine generator through the existing stack on top of Gleeson Library could exceed ambient levels by up

to 7 dBA at 3:00 AM on calm nights if the Cogeneration System were running at maximum level; however, the unit would not be run at maximum level at 3 AM since most buildings would neither be occupied nor heated.

- Present daytime indoor background sound levels at the homes across from Gleeson Library are about 30 to 35 dBA with windows closed, 35 to 40 dBA with windows open, and 45 to 55 dBA with windows open facing Golden Gate Avenue, when cars drive by. At 30 dBA, indoors, with the windows shut, the indoor sound level would be dominated by the sounds of refrigerators, electric clocks, etc.

- Noise would be generated by the engine generator, the heating boilers, the exhaust stack and the radiator. The maximum cumulative, unmitigated night noise level outside the buildings across the street would be 63 dBA. Use of a two-speed fan operated at the lower, quieter speed at night, a noise insulating enclosure around the radiator unit, and other design noise mitigation measures would reduce the noise level outside the nearest homes to 35 dBA and the level inside to 30 dBA.[3] 30 dBA is within the range of the existing ambient noise level at night, so the proposed project would not change current conditions in the area. A sound level of 30 dBA is the typical noise level in an unoccupied auditorium with just the air-conditioning system running. A summary of current noise levels at residences near the Gleeson Library boiler plant and projected levels with the cogeneration plant is given in Table 3A, p. 67-A.

Construction Noise Impacts

Noise levels would be temporarily elevated in adjacent residential areas

Table 3A. Noise Levels at Nearest Homes With and Without the Cogeneration Plant (dBA)

Location	Present Noise Level		Noise Level With Cogeneration Plant[1]	
	Daytime With Boiler	Night[2] Without Boiler	Day	Night
Outside, car driving by	60-70		60-70	
Outside	44-47	46[3]	47	46
Inside, windows open, car driving by	50-60	45-55	50-60	45-55
Inside, windows open	35-40	30-35	40	30-35
Inside, windows closed	30-35	25-30	35	25-30

1. Assumes use of a two speed fan running at the slower, quieter speed at night.

2. Minimum ambient noise levels found at 3-5 AM on 24-hour recordings.

3. On quieter streets, further from USF, on quiet nights, the minimum noise level may be as low as 38 dBA. No cogeneration system noise could be heard at this distance.

Source: Charles M. Salter Associates, Robert E. Fishman, P.E., and Bendix Environmental Research, Inc.

during the approximately 18-month construction period. Because construction noise is temporary, standards adopted to control construction noise emission tend to be less restrictive than those controlling permanent noise sources. In general, standards are designed to protect against significant activity interferences, such as sleep disturbance and speech interference.

Any project undertaken in the City of San Francisco must conform to the San Francisco Noise Ordinance, which prohibits all powered construction equipment, except impact tools, from generating noise in excess of 80 dBA measured at a distance of 100 ft. Impact tools and equipment, including pavement breakers, jackhammers and pile drivers must have both intake and exhaust muffled to the satisfaction of the Director of Public Works. The ordinance further requires a special permit for construction after 8:00 PM and before 7:00 AM.

Construction of the Health and Recreation Center would involve five phases. The first phase would be the demolition of the existing Loyola Hall and the partial demolition of the existing Loyola Gym. It is anticipated that this demolition would occur over a two week period. During this period the major noise generating equipment would be jackhammers, front end loaders, trucks and a backhoe-mounted ram. The jackhammers, trucks and loaders all generate maximum noise levels of 80 to 85 dBA measured at a distance of 50 ft. The backhoe-mounted ram, which would be used intermittently during the first two-week period to demolish building floor slabs, generates noise levels of about 100 dBA at 50 ft. The nearest homes to the demolition activity are located opposite the site along Stanyan St., the closest of which is about 80 ft. from the proposed project. Maximum noise levels inside these homes with the windows closed would range from 59 to 61 dBA

when the jackhammers, trucks and loaders are operating. Noise levels generated by the backhoe-mounted ram would reach about 76 dBA in the nearest homes with the windows closed, which would be high enough to disrupt indoor activities. There is also a potential for occasional speech disturbance during the use of the jackhammers, trucks and loaders.

Excavation, the next construction phase, would require about eight weeks and would entail the use of scrapers, bulldozers, a crane, front end loaders and trucks. As this activity would take place over the entire construction site, residences along Stanyan and Turk Sts. and Parker Ave. would all be exposed to this noise for varying amounts of time. The nearest residences would be those on Stanyan and Turk Sts., located between 80 and 300 ft. from this activity. Parker Ave. residences would be located over 300 ft. from this activity. Maximum noise levels inside the nearest homes, with the windows closed, would range from 57 to 60 dBA during this phase. There would be an occasional potential for some speech interference indoors.

Foundation construction would take approximately five weeks. During this time, the major noise source would be from concrete pumping trucks. These trucks would most likely be positioned in the interior of the site, either on the parking lot or on the soccer field, where the concrete would be pumped to the foundations. Nearby residences on Stanyan St., across from the site, and along McAllister, adjacent to the sites, would be exposed to this noise. Maximum noise levels inside these homes would reach about 55 dBA, eight dBA above the daytime ambient levels.

The concrete structures would then be erected; this phase of construction would last for nine to ten months. During this time, major noise sources would be concrete pumping trucks, air compressors and cranes. Noise gener-

ated by the concrete pumping trucks could reach 63 dBA inside nearby residences located on Stanyan St. The sound of cranes could reach 55 dBA inside these homes, and noise generated by air compressors could reach 50 dBA. During this phase of construction there would also be a potential for some speech interference inside the nearest homes. This equipment would be used sporadically during this construction phase.

The final construction phase would be the metalwork and finishing phase, which would take place primarily indoors and last about six months. The majority of this activity would be inaudible inside the nearest homes, with the possible exception of impact wrenches used to bolt metal pieces together. This activity would generate noise levels of about 65 dBA for short and sporadic moments in the nearest homes on Stanyan St.

Installation of the Cogeneration System would require a one year construction period. The initial four-month phase would include: cutting and removal of a wall panel from the Gleeson Library basement site, removal of four steam boilers and associated piping, pouring a new foundation slab on the basement floor and installing the Cogeneration machinery. Impact tools and jackhammers would be used to remove the wall panel from the Gleeson Library basement and to remove the four gas-fired boilers. The nearest private residences to the site, located about 140 ft. away, across Golden Gate Ave., may experience occasional speech disturbance during the use of jackhammers and trucks. Periodic disturbance to students using the Library and Library staff would occur during the initial construction phase.

After this approximately four month period, the basement wall would be replaced and the rest of the construction would be conducted within the soundproofed shell of the Steam Plant and would not be expected to disturb

residents inside the nearest homes on Golden Gate Ave.

Construction activities relating to the Cogeneration System but occuring in other areas of the University would include: replacement of old electrical transformers adjacent to the Steam Plant and installation of new steam piping to the Health and Recreational Center. These activities would occur over the last four months of construction and would occur primarily underground and thus would not generate excessive amounts of noise.

Cumulative Noise Impacts

The two USF projects, the Recreation Center and the Cogeneration facility, would be located approximately 1,000 feet from each other and over 1,000 feet from the St. Mary's Medical Office Building project, the closest of the other projects in the Greater Haight study area to these projects. There would be no perceptible cumulative noise impacts associated with the traffic generated by these projects or by the operational noise generated after completion of the projects. Each project is far enough removed from the others so that a residence located within the audible range of one project would not be exposed to cumulative noise from another project.[4]

There is the potential for either slightly higher noise levels during construction or an increased amount of time persons might be exposed to construction noise for residents located between any two of the three projects. Construction noise associated with the projects would cumulate if any two of the three projects went forward at the same time. Because of the dense development in this area, persons exposed to high construction noise levels of one project would experience noise levels associated with the other project that would, at most, be just detectable above the back-

ground sound levels in the area. Persons located halfway between these projects would be exposed to relatively low noise levels from either project.

Vibration Impacts

The Cogeneration System engine would be placed on a thickened concrete slab in order to absorb vibration. Rubberized mounts would be used underneath the machinery to further dampen vibration. Vibration from the operation of the Cogeneration System is not expected to disturb users of the library directly above or occupants of the nearest homes, 150 ft. away.

NOTES - Noise and Vibration

1. Noise analysis by Charles M. Salter Associates, San Francisco. Report on file with Department of City Planning, Office of Environmental Review, 450 McAllister St., San Francisco, CA, 94102.

2. Charles M. Salter, Charles M. Salter Associates, telephone conversation, of August 4, 1984.

2a. Richard Illingworth, telephone conversation of 31 May 1985.

2b. The sound level in the boiler room, with two out of four boilers operating, is 73 dBA. With all four boilers operating, the level would be expected to be 2-3 dBA higher, or 75-76 dBA. This difference would not be audible.

2c. There can be a sizeable variation in the noise produced by different engines of the same size. The noise and vibration estimates in the DEIR are worst case estimates based on information developed by Dr. Laymon Miller of Bolt Beranik and Newman, Inc., Cambridge, Massachusetts. Dr. Miller measured equipment under a variety of conditions and developed a technique that predicts levels as high or higher than the sound level generated by 95% of the pieces of equipment that he measured. Therefore, 95% of engines of appropriate size for this project would be expected to generate sound levels lower than those stated in this EIR. The relevant portion of this report is available for public review in the Office of Environmental Review case file.

3. Robert Fishman, FMC Associates, Consulting Engineers, telephone conversation of March 5, 1985.

4. Richard Illingworth, Charles M. Salter Associates, telephone conversation of February 27, 1985.

D. Transportation, Circulation and Parking[1]

The transportation impacts discussed below are associated primarily with the Health and Recreation Center. The Cogeneration System would contribute to traffic impacts during its construction period but not after its completion.

Construction Traffic

Construction vehicles, either hauling debris from the Health and Recreation Center Site or delivering materials to it would increase traffic on local

streets during the 18-month construction period. During the first three months, demolition and excavation would require an average of about six truck stops per day (12 trip ends). The subsequent foundation pouring and wall erection phase would last approximately nine months and require about six concrete trucks per day initially (12 trip ends) and taper to two truck stops daily (four trip ends) by the end of the period. The remaining six month finishing period would require an average of three delivery truck stops per day (six trip ends) at the site.[2]

With approximately 150 person-years of construction labor required[3] for the Recreation Center project, and if all construction employees drive with little ridesharing and similar work shifts, about 80 vehicle trips would be generated during the employees' evening commute period.[4] Construction workers would park their commute vehicles on site during construction.

Approximately 23 person-years[3] of construction labor would be required for the Cogeneration System, resulting in an increase of about 20 commute period vehicles. Most of the construction traffic created by the one-year installation of the the Cogeneration System would occur during the first four months, when four steam boilers would be removed from the Gleeson Library basement. During this time an average of two truck stops per day (four trip ends) would occur along Golden Gate Ave. A portion (approximately 10 vehicle spaces) of the parking lot adjacent to Gleeson Library would be occupied by construction vehicles as a staging area during the installation period.

Cumulative Construction Traffic

A worst case situation for cumulative construction traffic impacts would

exist if the USF projects were constructed at the same time as the proposed St. Mary's Medical Office Building. Construction workers would be at the sites when truck trips for the various operations would be made, so very few of the operations trips would overlap with commute trips of the construction workers. The construction industry usually operates on an earlier daily schedule than other businesses (7 AM to 4 PM), with their AM and PM commute periods occuring earlier than the systemwide peaks.

If construction of the St. Mary's Medical Office Building and the USF projects coincided, traffic effects would be more concentrated. If all three projects were in the phase of construction that would generate the greatest volume of truck trips at the same time, a total of 112 per day would visit this vicinity. Shrader Street may be too steep along the Medical Office Building frontage to use it consistently for truck trips to the Medical Office Building site. This would place more trips on Fulton and Stanyan Streets, two streets offering major access to the USF projects. Such cumulative construction traffic would probably exacerbate the already congested condition of the Fulton/Stanyan intersection. However, Turk St. and Geary Blvd. to Stanyan Street are two logical alternative routes to USF. Nearby construction is a factor taken into account by the Department of Public Works when routes for construction operations traffic are developed.

Trip Generation

Trips presently generated by Loyola Hall would be relocated to other parts of the USF campus by the relocation of Loyola Hall's activities, so there would be no net reduction of trip-ends in the area surrounding the USF campus resulting from the building's demolition.

Five groups of people would be expected to use the proposed Health and Recreation Facility: USF students, faculty, staff, alumni and residents of the community surrounding the University. Most of the student, faculty and staff daily trips to the Recreation Center would be internally generated and would not represent new trip ends. That is, each person's classes or job would be the external generator of the trip to USF and not the Recreation Center itself. Therefore, new trips generated as a result of the Recreation Center project would be those of alumni and community residents, (plus those of any students that would travel to USF only to use the proposed facility).

To estimate the approximate the number of new alumni and community resident trips, data were assembled on the use of the existing USF recreational facilities, and a study of a similar facility (the Almaden Athletic Facility in San Jose) was examined.[5] The survey of existing USF recreational facilities showed that approximately 99% of the users are students, and the remaining 1% are faculty, staff and alumni.[6] Less than ten USF alumni currently use the University's recreational facilities.[6] For the proposed Recreation Center, USF expects to retain the proportion of student, faculty and staff users at approximately 95% of the total number of users, with the alumni and community residents comprising a maximum of 5%.

The proposed Health and Recreation Center would generate about 4,000 weekday trips, 2,500 Saturday trips and 3,200 Sunday trips.[5] When these trips are distributed among the user groups according ot the expected ratios, new trips generated by alumni and community residents would be approximately 200 persons on weekdays, 125 people on Saturdays and 160 on Sundays. Alumni and community residents would most likely use the proposed facility

during early morning and evening hours on weekdays and at various times on weekends.[5] USF has stated that it may restrict the times alumni and community residents are allowed to use the Recreation Center to weekdays during the periods of 6-9 AM and 5-9 PM (assuming the new facility would be open at these hours). Assuming these restrictions, the peak hour of use on weekdays for alumni and community residents would be between 6 and 7 PM.[6] During this period, about 24%, or 47 of the daily alumni and community resident trips would occur.

Mode Split

The mode split for alumni and community resident users of the proposed Recreation Center was estimated based on the mode split of UCSF campus visitors.[7] UCSF, like USF, is an educational institution located in the Greater Haight-Ashbury area, and has similar traffic access, transit service and availability of off-street and on-street parking. The following mode split has been used for the analysis in this report: 72% auto (including carpools and taxis), 22% MUNI and 6% walk.

Traffic Impacts

The project would add about 144 new weekday vehicle-trips to the streets surrounding USF. Approximately 34 of these vehicle-trips would occur during the peak use hour of 6-7 PM. The entrance to the proposed project's parking lot would be located on the south side of Turk St. just west of Parker Ave. The number of new vehicle-trips generated by the proposed Recreation Center would be greatest at the Stanyan St./Turk St. and the Parker Ave./ Turk St. intersections between 6 and 7 PM weekday evenings, however traffic

volume on these streets at this time would be lower than during the peak hour.

During the PM peak hour (4:30-5:30 PM), when the streets are most heavily used, the proposed project would generate about 30 new vehicle-trips. The volume-to-capacity[8] ratio at Stanyan and Turk Sts. would increase by about three percent with the project; this intersection would remain at level of service B.[9] The volume-to-capacity ratio at Parker Ave. and Turk St. would not change during the peak hour period and would remain at level of service A. For the AM peak hour (8-9), about 12 new vehicle-trips would be generated by the project, and would have undetectable impacts on the two intersections mentioned above.

Parking Impacts

- The proposed Recreation Center would provide a single 177-space on-site surface parking lot to replace the three existing on-site lots, which contain 184 spaces. The proposed lot would result in a seven space reduction in on-site parking. In anticipation of this deficit, other main campus lots at USF have already been restriped to create nine new spaces.[10] These nine spaces would permanently provide two more spaces than would be lost due to the project. Alumni and community resident users of the proposed Recreation Center would generate a maximum new parking demand for about 34 vehicles between 6 and 7 PM on weekdays. Currently, vehicle occupancy at the three lots drops to less than 30% after 6 PM on weekdays.[11] Assuming this trend continues, there would be adequate space available to accommodate the projected increase in weekday PM peak demand. During daytime hours, no new

parking demand would be generated by the proposed project, assuming that alumni and neighborhood use is restricted as expected. Approximately 105 parking spaces would be unavailable during the 18 months of construction. Some temporary replacement parking would be made available on the soccer field (at least 40 spaces).[1] Vehicles displaced by construction, which could not park on the soccer field, would be parked elsewhere on campus or on streets near the campus.

Transit Impacts

The proposed Recreation Center would generate approximately 44 new MUNI trips on weekdays. About 10 of these trips would occur between 5 and 6 PM, the peak hour of new public transit use by people visiting the proposed project. Because MUNI trips would be divided among lines 5, 31 and 43, all of which serve the University, no one line would receive all 10 of the trips, thus none of the lines would be measurably affected by new transit riders from the Recreation Center.

Pedestrian Impacts

Approximately 900 people currently visit Loyola Hall and/or Gym each day during the academic year, generating about 1,800 trips per day. These trips are distributed to and from both the main USF campus and the Lone Mountain campus, with the majority of students coming from or going to the main campus across Parker Ave. between Golden Gate Ave. and McAllister St. No pedestrian flow problems currently exist at the above intersection or along the sidewalks surrounding the Health and Recreation Center project site. San Francisco Police Department has recorded four auto accidents during the past year on Parker Ave. between the main campus and Loyola site,[12] however,

none of those accidents involved pedestrians.

New pedestrian trips from off campus generated by alumni and community residents would amount to approximately 24 new daily trips and would not have a measurable impact upon existing pedestrian flows. New student trips

to the Health and Recreation Center site from elsewhere on campus would increase by about 2200 trips/day, and most of these would probably cross Parker Ave. at mid-block, just south of Golden Gate Ave. No crossing signal would be required because of the minimal volume of vehicular traffic on Parker Ave.[13] Both the Parker Ave./Turk St. intersection (500 ft. north) and the Parker Ave./Fulton St. intersection (300 ft. south) are regulated by signals.

Cumulative Transportation Impacts

The USF Health and Recreation Center would generate approximately 3% of the total net new daily vehicle trips in the Greater Haight-Ashbury cumulative study area and about 8% of the PM peak hour trips (5-6 PM). Approximately 3% of the cumulative increases in transit trips and 6% of the peak new transit trips would be attributable to the Recreation Center project. Only major corridors would be measurably impacted by the cumulative development to which USF would contribute in the aforementioned percentages. The Fell/Oak St. corridor would experience an approximate increase in 24-hour two-way traffic of 4%. Fulton St. west of Stanyan St. would receive about a 6% increase in daily two-way traffic.

NOTES - Transportation

1. Transportation analysis by DKS Associates, Oakland, May, 1984 under contract to Bendix Environmental Research, Inc. A copy of the report and existing traffic counts are available for review at the Office of Environmental Review, 450 McAllister St., 5th Floor, San Francisco, CA.

2. Telephone conversation with Don DesJardin of Amorono Construction Co. August 14, 1984.

3. An estimated $10 million (1984 dollars) would be spent during construction. Labor costs are projected to be approximately 55% of the total ($10 million x .55 = $5.5 million), including direct wages, taxes and

fringe benifits; an annual cost of $36,000 per construction worker.

4. 150 person-years averaged over an 18-month construction period equals a maximum 100 workers on site at any one time. 100 workers divided by a load factor of 1.2 persons per vehicle equals approximately 80 vehicles.

5. Caltrans, 12th Progress Report on Trip Ends Generation Research, December, 1979. The Almaden Facility was chosen as the best available source of information applicable to the proposed project. That is, a facility housing several activities, located in a similar geographic region and one with general information available for both weekday and weekend use.

6. Chuck White, USF Director of Intramural Athletics, telephone conversation, May 4, 1984.

7. UCSF TSM Management Study: Consultant's Final Report, September, 1977.

8. The ratio of of volume of traffic to capacity for a road; V/C ratios are useful to estimate levels of service and congestion.

9. Field observations by BERI, June 5, 1984. For Level of Service definitions see Appendix D, pg. A-28.

10. Parking study by Pfleuger Architects, 14 March 1985. On file with the Department of City Planning, 450 McAllister St., 5th Floor, 94102. Letter from Richard Luckett, Pflueger Architects, to Jon Hussey, Office of Environmental Review, March 21, 1985.

11. DKS Associates field survey, May 9, 1984 (4-6 PM).

11a. Glen Loomis, Plant Manager, University of San Francisco, telephone conversation of June 12, 1985.

12. Barbara Winter, San Francisco Police Department Traffic Statistics Analysis, telephone conversation, December 11, 1984.

13. The San Francisco Traffic Code maintains that to warrant a signaled pedestrian crossing there must be at least 150 pedestrian crossings per hour, an approach volume (in one direction) of 600 vehicles per hour, and the proposed crossing must be at least 150 ft. distant from the nearest regulated intersection.

E. Land Use and Zoning

The proposed Health and Recreation Center would involve all of Assessor's Block 1144, except a portion of the southern edge of the block containing residential units. The project would require demolition of Loyola Hall (91,000 sq. ft.) and partial demolition and rehabilitation of Loyola Gym

(12,400 sq. ft.). The proposed Recreation Center would be constructed in the area vacated by Loyola Hall and would incorporate the remaining portion

(about 11,000 sq. ft.) of Loyola Gym. Administrative offices and classrooms presently occupying Loyola Hall would be relocated on the USF campus. The existing soccer field would be shifted approximately 10 ft. to the west. Existing spectator stands would be moved to the east side of the field (adjacent to Parker Ave.), and a press box and public restrooms would be incorporated into the stands.

The project would increase the density of development on the site, adding about 30,000 net new sq. ft. of development, but would not alter the character of the site. The relationship of the site to the neighborhood as part of a University in a residential setting would not be altered. All portions of the Recreation Center and the press box on the soccer field would be within the limits of the 40-X and 80-D Height and Bulk Districts. The parking spaces currently at three locations on the Health and Recreation Center site would be consolidated at the existing parking lot on Turk St. to provide 177 spaces. This would require 60 ft. to be added to the southern edge of the existing Turk St. parking lot. Construction of the Recreation Center and associated building demolition would result in a net increase of 2.2% in building coverage of the USF campus (not including Lone Mountain).

The proposed Cogeneration System would be located under the existing Gleeson Library, where the existing Campus heating system is located, and would not represent a change in land use. Because the University has downgraded the size of the proposed facility and would only be selling about 5% of the power generated by the system, thus no longer principally deriving profit from the sale of power, the Cogeneration System would be regarded as an accessory use under Section 204.2 of the Planning Code.

The cogeneration site is in an RH-2 zoning district in which Planning Code

Table 3B. Land Use Characteristics of the Project Site.

	all areas in square feet (percentages of campus area in parentheses)
Campus area not including Lone Mountain	1,192,000
Existing ground coverage of buildings	266,000 (22%)
Existing Negoesco Soccer Field	130,000 (11%)
Existing 3 Parking lots involved in project	64,000 (5.4%)
Recreation Center, gross[1]	118,800 (10%)
Recreation Center, net	26,400 (2.2%)

1. Gross area is the area of the new building; net area is the area of the new building minus the area of Loyola Hall to be demolished to give the net new area of building on campus.

§ 204.2(c) permits "activity of a profit-making or commercial nature" if it is "an integral part of the permitted principal or conditional use where such activity is expressly permitted by Sections 209.1 through 209.9 of this Code." (pages 86-87) The University is expressly permitted as a conditional use by Planning Code § 209.3(i). Other conditional uses permitted in an RH-2 District include other types of schools, hospitals, privately owned community facilities, greenhouses with retail sales, and utility installations "provided that operating requirements necessitate placement at this location."

The proposed project would meet the goal of the Energy Element of the Comprehensive Plan for the City and County of San Francisco by "Increasing the efficiency of energy use" (Goal 1, page 5) and would implement Objective 7, "Develop financing opportunities to implement local energy

programs.", Policy 2, "Encourage private financial institutions to offer energy loan programs responsive to local market needs."

F. Visual Quality

New Construction

The Recreation Center would be constructed along the western portion of Block 1144, parallel to Stanyan St.. Recreation Center buildings would extend further north along the Stanyan St. frontage than Loyola Hall now does and would be an average of 20 ft. lower in height than Loyola Hall. The proposed Multi-Purpose Court Building, Natatorium and Racquetball Court Building would each be set back, at ground level, from the Stanyan St. sidewalk.

Trees and shrubs planted in the areas created by the setbacks (which would vary in depth from three to 30 feet) and in front of the west-facing galleria would provide shade and reduce glare from the reflection of sunlight off west facing glass. Since glass used for the Recreation Center would be nonreflective and west facing panes would be angled to face northwest and southwest rather than directly at Stanyan St. glare would be further reduced.

The facades of the Multi-Purpose and Racquetball Court buildings would be articulated using a variety of building material textures, colors and configurations that would create an exterior rhythm intended by the project architect to be consistent with the small scale residential development directly across from the site on Stanyan St. Although the Recreation Center building's facade would be staggered, the Center as a whole would reflect more contemporary design differing from the surrounding older structures.

Nightime lighting from the the glassed, enclosed portions of the proposed Health and Recreation Center and from the existing light standards on the

soccer field would be visible off-site. Trees and shrubs along the galleria frontage on Stanyan St. would act to diffuse light emanating from the project, however, glass roofed portions of the structure would be visible at a distance when fully lit. Light standards on the west side of the soccer field would be moved eastward approximately ten feet. Light intensity and illumination during evening events on the soccer field would remain at existing levels.

Views

The topography of the area surrounding the Health and Recreation Center site influences many of the views the neighboring homes have of the City and of the local neighborhood. Long range views of downtown San Francisco are obstructed by higher ground to the east of the site and would not be affected by the projects. Views to the north, west and south would not be obstructed by the proposed project because homes that look out through those view corridors are generally higher in elevation than the buildings proposed for the Stanyan St. frontage. In addition, proposed construction on the Health and Recreation Center site would replace Loyola Hall and result in a net decrease in height of about 20 ft. and reduction of existing view blockage (see Figure 16, p. 84).

Short range views of the Ignatius Heights area from the homes immediately west of the Health and Recreation Center site (along Stanyan St.) would be dominated by the proposed Recreation Center. The Multi-Purpose Courts Building would be lower than Loyola Hall but would occupy the open area presently covered by a 48-space parking lot surrounded by a 15 ft. high hedge at the corner of Turk and Stanyan Sts. This portion of the Recreation

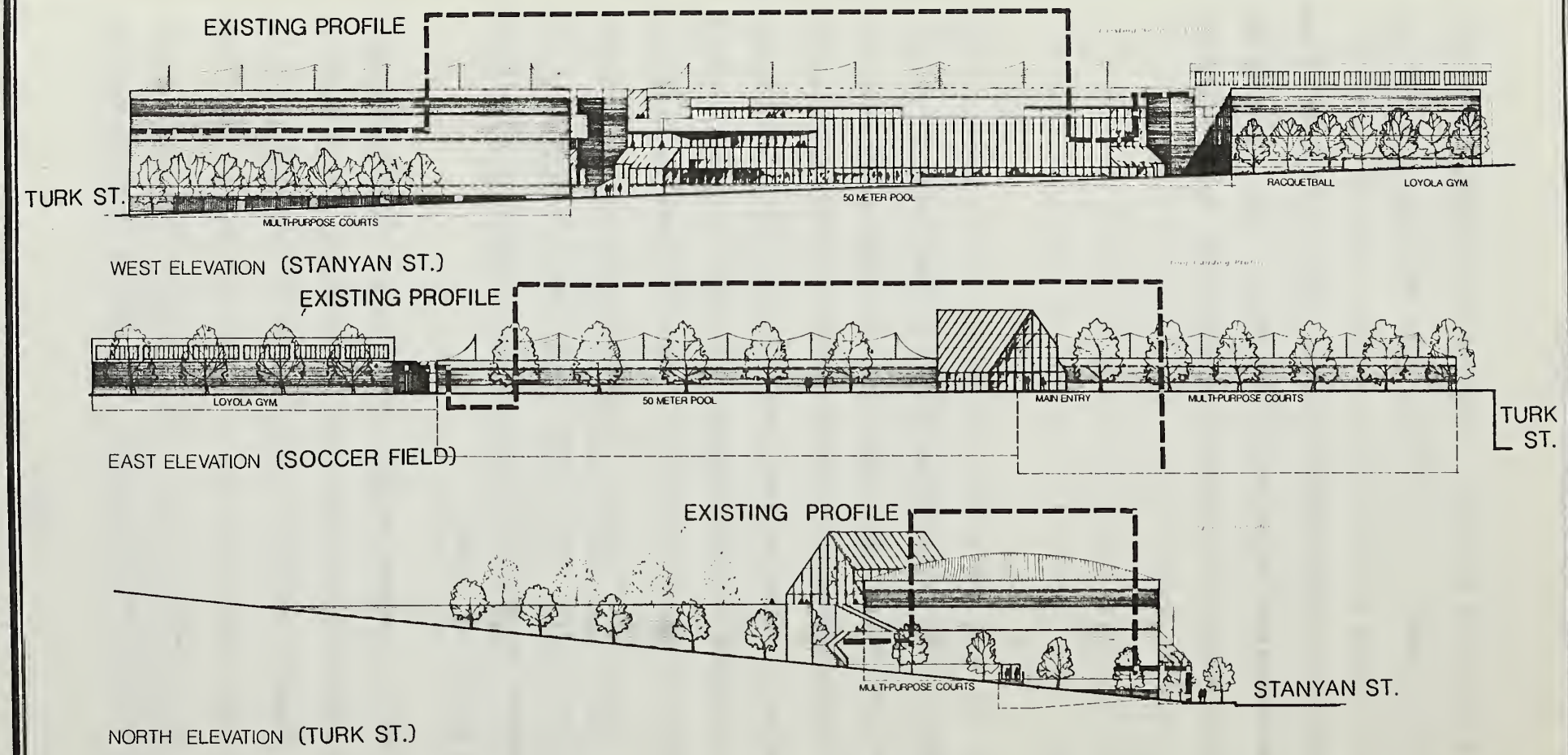


FIGURE 16

COMPARISON OF EXISTING AND PROJECT ELEVATIONS

USF HEALTH AND RECREATION CENTER

SOURCE: Bendix Environmental Research, Inc. and Pflueger Architects

0 8 16 32 64 100

Scale: 1"=64'

Center would represent a net increase in height and bulk for the site and would dominate short range views from homes in the immediate vicinity of the Turk and Stanyan Sts. intersection.

Portions of the proposed Cogeneration System which would be exterior to Gleeson Library would be the exhaust stack and a heat radiator, however, the cogenerator exhaust stack would be fully contained in an existing stack and would not constitute a change in visual impact. Viewed from a distance, the heat radiator unit would obscure an 11 ft. x 9 ft. area of space underneath an existing canopy atop the library roof and would not be likely to affect views from the surrounding area.

Cumulative View Impacts

The potential for cumulative visual impacts would be from the north and northwest where views of the project site would also include St. Mary's proposed medical office building. From the Presidio's Arguello Gate, both buildings would be seen with St. Mary's proposed 11-story North Tower as a backdrop, however they would not affect views of the St. Ignatius Church. From Lincoln Park, over two miles distant, the project sites are hard to distinguish and do not obstruct panoramic views of Lone Mountain, St. Ignatius, Golden Gate Park, and Mt. Sutro.

G. Hazards

Natural gas fuel would be used by the proposed Cogeneration System but not stored on site. Based on the past 25 years of operation, potential leaks or fires associated with either the use of natural gas or storage of stand-by fuel oil used for the boilers would be expected to be minimal.[1]

Safety measures currently followed at the main USF boiler plant would be incorporated into the proposed Cogeneration System project. Additional health and safety measures would include gas detection devices which would sense gas leakage, automatically trigger an alarm and shut off the gas supply to the Cogeneration System and the standby boilers. If equipment malfunctioned, fuel supply would be automatically shut off and power output would disconnect from the PG&E grid.

Facility operators would be trained to handle chlorine and other chemicals (including sulfuric acid and sodium hydroxide) which would be stored for use in boiler feedwater and in swimming pool water purification. The chemicals would be stored according to Cal-OSHA regulations.[2] Based on the accident-free past 25 years of handling chemicals used by the boiler system, the potential for chemical accidents would be expected to be minimal.[1]

The proposed Cogeneration System would comply with applicable requirements of Cal-OSHA, including worker, equipment and building safety regulations. The transformer used to replace the three existing ones in the electrical system would not contain polychlorinated biphenyls (PCBs), preventing the risk of PCB contamination in the event of a transformer failure.

Fire Safety

The San Francisco Fire Department does not expect either the Cogeneration System or the Health and Recreation Center to present any unusual fire hazards.[3] The nearest fire stations would be Station 21 on Grove St., nine blocks from the project site, and Station 12 on Stanyan St., ten blocks from the project site. Fire Department normal response time would be approximately three minutes.

Fire safety equipment and procedures at the proposed Cogeneration System would comply with the San Francisco Fire Code. A failsafe, continually self-checking, automatic fire suppression/detection system would be installed at the facility. The system would detect heat level changes in the facility, automatically shut down the gas engine, and discharge a fire suppressant should there be a fire within the engine enclosure or elsewhere in the Cogeneration System enclosure. A portable fire extinguisher would be used to put out small fires before the automatic system was triggered. No smoking would be allowed in the facility and storage of combustibles (paper, etc.) would be forbidden near all equipment.

Construction Safety

Trenches would have to be dug on campus for underground pipes and conduits. Trenches would be protected by barricades or handrails and would be covered with steel plates or bridges at pedestrian crossings. Trenching and excavation procedures would comply with applicable Cal-OSHA regulations.

NOTES - Hazards

1. Harold Hansen, Plant Engineer, phone conversation, 26 October 1983.
2. State of California Occupational Safety and Health Act, Labor Code, §6300-6708; Health and Safety Code, §18947.
3. Lt. Norman Silva, San Francisco Fire Department, meeting, September 14, 1983.

H. Growth Inducement

The environmental effects of growth inducement are indirect. In order for a proposed project to affect the environment in this way, it would first have to cause other development which would not have occurred otherwise.

That other development would have the environmental effects in question. Any analysis of this chain of events can only be very general because of the speculative nature of the amount and type of development that might be induced.

The USF recreation center would be designed to be an intramural facility with small audience accomodations; therefore, it is expected to be used only by students and faculty of the college and by a small number of alumni and neighborhood residents. It would be part of a program to retain existing levels of student enrollment, rather than a drawing card to increase enrollment to higher levels, thus it would not serve to create new demand for dormitory, classroom, or other academic facility construction, nor for off campus development.

The proposed Cogeneration System would be a replacement facility for an aging steam plant while also supplying electricity principally for the University's needs and would not serve to induce additional development on or off campus.

CHAPTER V. MITIGATION MEASURES

In the course of planning and design, measures have been identified which would reduce or eliminate potential environmental impacts of the proposed projects. Some of these measures have been or would be adopted by the project sponsor, architect or contractors, and some are still under consideration by project sponsor.

A. Air Quality

Measures Proposed as Part of the Project

° In order to reduce dust and potential spillage of debris onto the streets, the contractors would be required to sprinkle the excavation area with water twice daily and sprinkle all truck loads of excavated materials being carried away from the site.

° Earthmoving construction activities would be suspended to reduce dust during periods of high wind.

° To minimize the impact of exhaust emissions on the people in the vicinity of the Cogeneration System, the project sponsor would have the top of the Cogeneration System exhaust stack narrowed to increase emission velocity and thus the extent of the dispersion.

B. Noise

Measures Proposed as Part of the Project

° The heat radiator unit of the Cogeneration System would be encased within a noise insulating enclosure that would reduce noise to levels at or below

the respective daytime and nighttime ambient levels.

° The fan in the heat radiator unit would be run at low-speed during the night to reduce noise generated by the radiator to a level below that which would potentially cause sleep disturbance for the residents of the homes nearest the Gleeson Library site.

° The intake and outlet of the System would be equipped with silencing devices to reduce noise levels measured at the nearest homes.

° The Cogeneration System would be installed in a basement, which would reduce noise levels emitted from the System to the environment.

° The Cogeneration System would be enclosed in an acoustically treated shell to reduce noise to levels currently existing inside the Steam Plant.

° Soundproofing of the Steam Plant would include acoustic tiles or padding on the walls and air intake and exhaust pipe sound traps to reduce noise levels to 50 dBA just outside the basement walls.

° Insofar as feasible, major equipment would undergo initial testing with all acoustically mitigating auxiliary equipment in place to reduce noise impacts during equipment installation and system start-up.

° Whenever possible, existing parking lots and Negoesco Soccer Field (rather than the streets along the project site) would be used as the location for contractor's equipment and would function as the project staging area, since their greater distance from nearby residences would provide some noise attenuation.

° The construction contract would include a requirement that the contractor not exceed equipment noise limits stated in the City Noise Ordinance (Article 29, San Francisco Administrative Code, 1972).

° All construction would take place between 8:00 AM and 5:00 PM and would be restricted to weekdays; this would eliminate construction noise impacts

on residents of nearby homes during the times that they would most likely be home.

° A wooden barrier would be placed around the project sites, across from homes, to help muffle construction noise.

- Measure that Could be Implemented by Public Agency
- The Planning Commission, in consultation with an acoustical engineer could establish as a condition of the conditional use permit that a sound level survey be performed under specific conditions after operation of the Cogeneration System begins and require that if the sound level proves to be above a specified level, additional noise mitigation measures would have to be installed.

C. Transportation, Circulation and Parking

Measures Proposed as Part of the Project

° The general contractor for the project would meet with the Department of Public Works to establish construction vehicle routes that would minimize impacts to residents and businesses in the vicinity of the project site.

° Construction workers would park their commute vehicles on site and not on surrounding streets.

- ° USF staff would meet with staff of MUNI and the Department of City Planning to discuss the entrance to the parking area and to develop a mutually acceptable parking lot design.

° To alleviate possible automobile and pedestrian traffic impacts on Stanyan St., the parking lot and building entrances and non-emergency exits would be placed on the east side of the Recreation Center.

° Project sponsor would install bicycle storage facilities for those persons that would use bicycles as a mode of transportation.

° USF would continue to encourage public transit use by users of the proposed Recreation Center by providing transit maps and information in appropriate locations and through the sale of MUNI Fast Passes on campus.

*● ° USF would designate preferential carpool spaces in the project parking lot to encourage carpooling as a means of commuting.

° The University would participate in the Vista Bus system to bring students, faculty and staff to its campus, thereby allowing those students,

* This dot signifies a deletion.

faculty and staff that commute from San Mateo County the option of using public transit rather than their personal automobiles.

D. Visual Quality

Measures Proposed as Part of the Project

° The project site would be landscaped to delineate circulation paths, buffer views of the proposed Health and Recreation Center development and to minimize the institutional appearance of the project.

° Evergreen landscaping would screen exposed glass surfaces such as the Recreation Center entrance atrium and galleria to reduce glare from glass surfaces.

° Insofar as possible, west facing glass would be angled northwest to reduce glare directly across Stanyan St.

° Non-reflective glass would be used for the Recreation Center atria and galleria.

° The Cogeneration System would be underground in an existing building, to avoid an industrial looking visual impact.

E. Hazards

Measures Proposed as Part of the Project

° No smoking would be allowed in the cogeneration facility and storage of combustibles (paper, etc.) would be forbidden near all equipment.

° Cogeneration equipment would be installed in compliance with the National Fire Protection Association (NFPA) recommended "Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines," NFPA 37.

° Existing PCB-containing electrical transformers would be replaced with

new transformers not containing PCBs.

F. Historic, Architectural, and Cultural Measures

Measure Proposed as Part of the Project

° Should evidence of cultural or historic artifacts of significance be found during project excavation, the Environmental Review Officer and the President of the Landmarks Preservation Advisory Board would be immediately notified. The project sponsor would select an archaeologist or other expert to help the Office of Environmental Review determine the significance of the find and whether feasible measures, including appropriate security measures, could be implemented to preserve or recover such artifacts. The Environmental Review Officer would then recommend specific mitigation measures, if necessary, and recommendations would be sent to the State Office of Historic Preservation. Excavation or construction which might damage the discovered cultural resources would be suspended for a maximum of four weeks to permit inspection, recommendation and retrieval, if appropriate.

G. Geology/Topography

Measure Proposed as Part of the Project

° Project design would follow and emphasize existing topography to minimize the amount of grading required.

CHAPTER VI. SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

The following are expected significant impacts subject to final determination by the City Planning Commission as part of its certification process and in accordance with section 21067 of the California Environmental Quality Act (CEQA). Chapter VI of the Final EIR will be revised, if necessary, to reflect the Commission's findings.

This chapter identifies significant environmental impacts that could not be eliminated or reduced to an insignificant level by mitigation measures included as part of the proposed project, or other mitigation measures that could be implemented, as described in Chapter V., Mitigation Measures (pp. 88 to 92).

It is not expected that the proposed Health and Recreation Center and the proposed Cogeneration System would result in any significant unavoidable adverse environmental effects.

CHAPTER VII. ALTERNATIVES

This report discusses two separate projects that, for planning purposes, have been analyzed in the same document. Neither of the projects is dependent upon the other and the two may, or may not, be built at the same time. Project alternatives are discussed in a similar manner. There are three alternatives to the proposed Health and Recreation project: a Health and Recreation Center Built at Ulrich Field (Alt.1), a Health and Recreation Center Located in the Existing Loyola Hall Building (Alt.2), and a No-Project Alternative (Alt.3). There are four alternatives for the Cogeneration System being proposed: a 9.5 mW Cogeneration Plant (Alt.4), Alternate Cogeneration Fuels (Alt.5), Alternate Energy Sources (Alt.6), and a No-Project Alternative (Alt.7). Each alternative is discussed separately. If any of the Recreation Center alternatives were built at the same time as any of the Cogeneration System alternatives, their impacts would be additive.

Alternative 1.
Health and Recreation Center at Ulrich Field

Alternative 1 proposes the construction of the Health and Recreation Center at Ulrich Field at the corner of Golden Gate and Masonic Aves. (see Figure 17, p. 96). Hayes-Healy Hall is to the west of this site and residential units surround the site on the other three sides. The Alternative 1 site is on Lot 1 of Assessor's Block 1145 and is currently a baseball field approximately 450 ft. x 350 ft. (157,500 sq. ft.). This was the original site for the Health and Recreation Center as identified in the March, 1979,

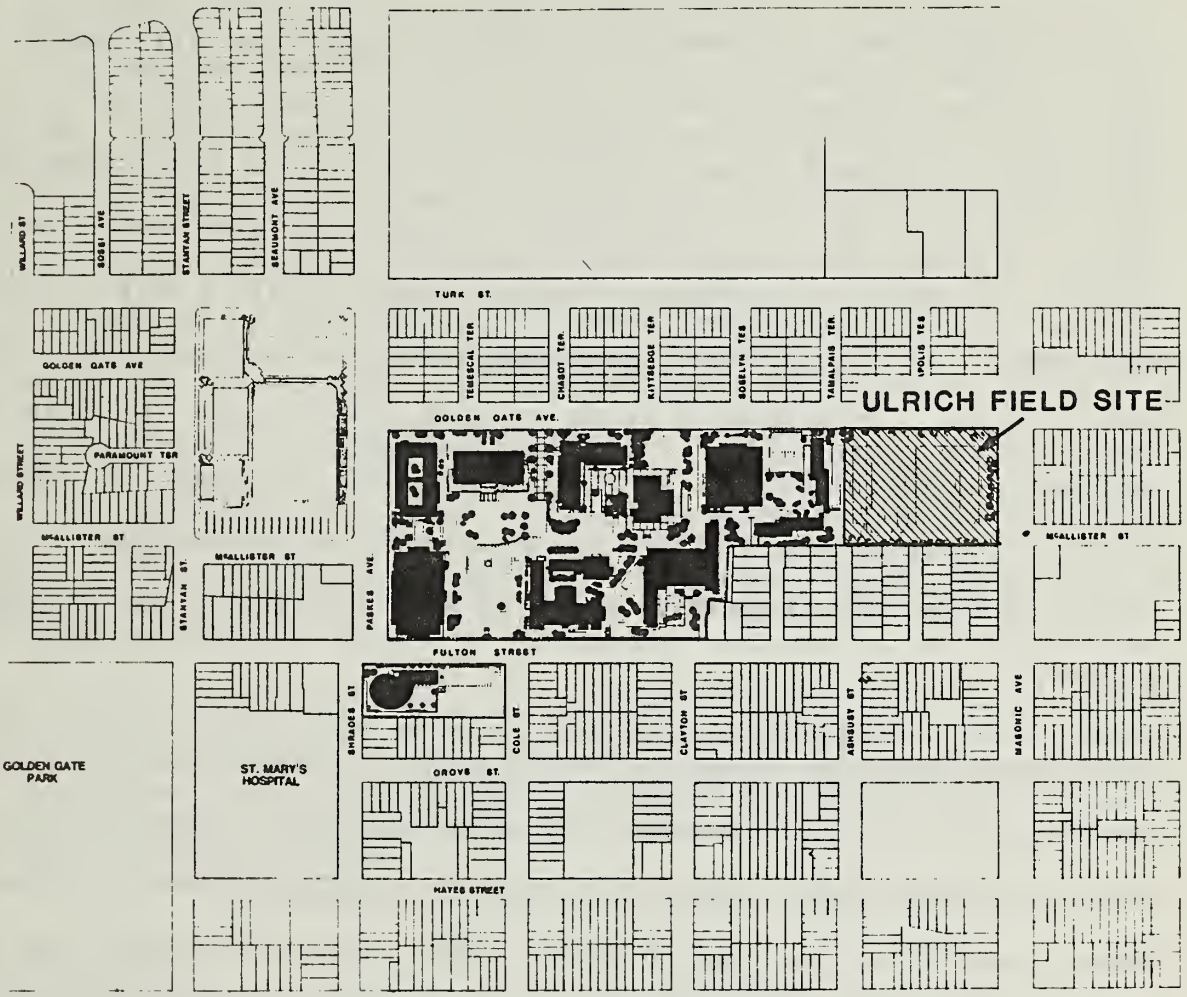


FIGURE 17

ULRICH FIELD ALTERNATE SITE

USF HEALTH AND RECREATION CENTER

N

ALTERNATE SITE

SCALE: 1" = 500'

SOURCE: Bendix Environmental Research, Inc. and Pflueger Architects

USF Institutional Master Plan.

In this alternative a swimming pool building (57,000 sq. ft.) would be located in the southwest corner of the site. A sundeck would be on the south side of the pool. The remainder of the Recreation Center (160,000 sq. ft.) would be set 10 ft. underground and would rise about 30 ft. above ground. The partially underground facility would contain a Multi-Purpose Gym, handball and squash courts, a fencing, dancing and gymnastics area, an exercise room, a hobby area, a lounge area and office space. It would be designed in units so that it could be constructed in phases, as funding permits. A parking lot, galleria and atria would not be included in this project because this Alternative would be more costly than the proposed project.

The baseball field now occupying the site would be displaced and could not be relocated on any other available parcel on University property and still remain regulation size. Loyola Hall and Loyola Gym would remain in their present condition. The Negoesco Soccer Field would not be upgraded as in the proposed project. The parking lots at the Loyola site would remain in their present condition.

Construction impacts would be different from those of the proposed project. No building demolition would occur for this alternative, but a greater amount of material would have to be excavated for the Recreation Center. This would increase construction transportation impacts, but construction noise impacts would be about the same as those for the proposed Recreation Center.

Project-related hazards, air quality and noise impacts of Alternative 1 would be similar to those of the proposed Health and Recreation Center.

Visual, land use, transportation and energy impacts of the Alternative 1 Recreation Center would be greater than those of the proposed project. The Recreation Center would be about 30 ft. above street level, which would block views for the nearby residents on Golden Gate and Masonic Aves. This alternative would increase the amount of traffic on Masonic and Golden Gate Aves. caused by persons searching for on-street parking. Replacement of the baseball field with an enclosed structure would increase the density of development on the site and put additional pressure on the University's few remaining open space recreational facilities. Energy impacts would be greater as well, because passive solar heating would not be included in this alternative. This would result in greater use of steam for space heating at the Recreation Center.

The project sponsor has rejected this alternative based on the increased visual, land use, transportation and energy impacts associated with the project at this location.

Alternative 2.
Conversion of Loyola Hall Into Health and Recreation Center

The project sponsor explored the possibility of an alternative that would involve the conversion of Loyola Hall to serve the functions of the Multi-Purpose Courts, the Pool and Racquetball buildings of the proposed Recreation Center. Construction impacts would be less than those of the proposed project as Alternative 2 would not involve complete demolition of one building and erection of a new one. Operational impacts associated with this Alternative would be similar to those associated with the proposed project.

The project sponsor rejected this alternative, however, because Loyola Hall has an interior design that could not be used as a recreation center. The building interior would have to be completely gutted and structurally reinforced, retaining only the building skin. The spacing of the columns, together with the floor to ceiling height is too constrictive for use as a multi-court space or as a pool. The cost of this Alternative would be more than that for the proposed project.

Alternative 3.
Health and Recreation Center Not Built

Alternative 3 describes the situation that would occur if the Recreation Center were not built. Loyola Hall, Loyola Gym, Negoesco Soccer Field and the three parking lots on the proposed Health and Recreation Center site would remain in their present condition. (The feasibility of the Cogeneration System and the impacts associated with alternative Cogeneration System sites would not be affected by a decision against building the Recreation Center.)

USF would depend on Memorial Gym, Loyola Gym and Ulrich Field for its recreational activities. The overcrowding of recreational facilities in Loyola and Memorial Gyms would continue. A recreational facility would not be available for community use. USF would continue to use City swimming pools for physical education classes. The University would have to use other campus facilities for their University and Alumni Clubs. Declining enrollment at USF has been attributed, in part, to a lack of recreational facilities and would continue if the proposed Recreation Center were not built. Noise, traffic, land use, visual, hazard and construction impacts associated with the proposed Health and Recreation Center would not occur.

The project sponsor has rejected this alternative because it does not meet its objective to provide the University with recreational facilities beyond those presently available and to make use of the Loyola Hall site.

Alternative 4.
9.5 mW Cogeneration Facility

As a result of independent energy studies performed for the University, the project sponsor explored the possibility of a 9.5 mW Cogeneration Facility that would supply USF with steam, not only to meet the present and projected needs, but also enough to sell to St. Mary's Hospital. All of the electrical power produced by the Cogeneration Facility would be sold to PG&E in accordance with PURPA, but only a small portion would be bought back for the University's own use, thereby allowing the Cogeneration Facility to be a net revenue producing operation for USF. This alternative could be located at four different sites as listed below (see Figure 18, p. 101). Construction impacts of this alternative would be greater than those for the 1.8 mW system proposed for installation into the existing steam plant beneath Gleeson Library. Operational impacts such as noise and air quality effects would likely be greater for this alternative. Emission of pollutants such as NO_x and sulfur dioxides would be greater principally because of the size of the facility and the possible use of standby fuel oil for short periods of time. Some of the alternatives would be partially above ground and would therefore constitute substantive visual impacts. All of these sub-alternatives could be constructed independently of the proposed Health and Recreation Center. A brief description of each sub-alternative follows.

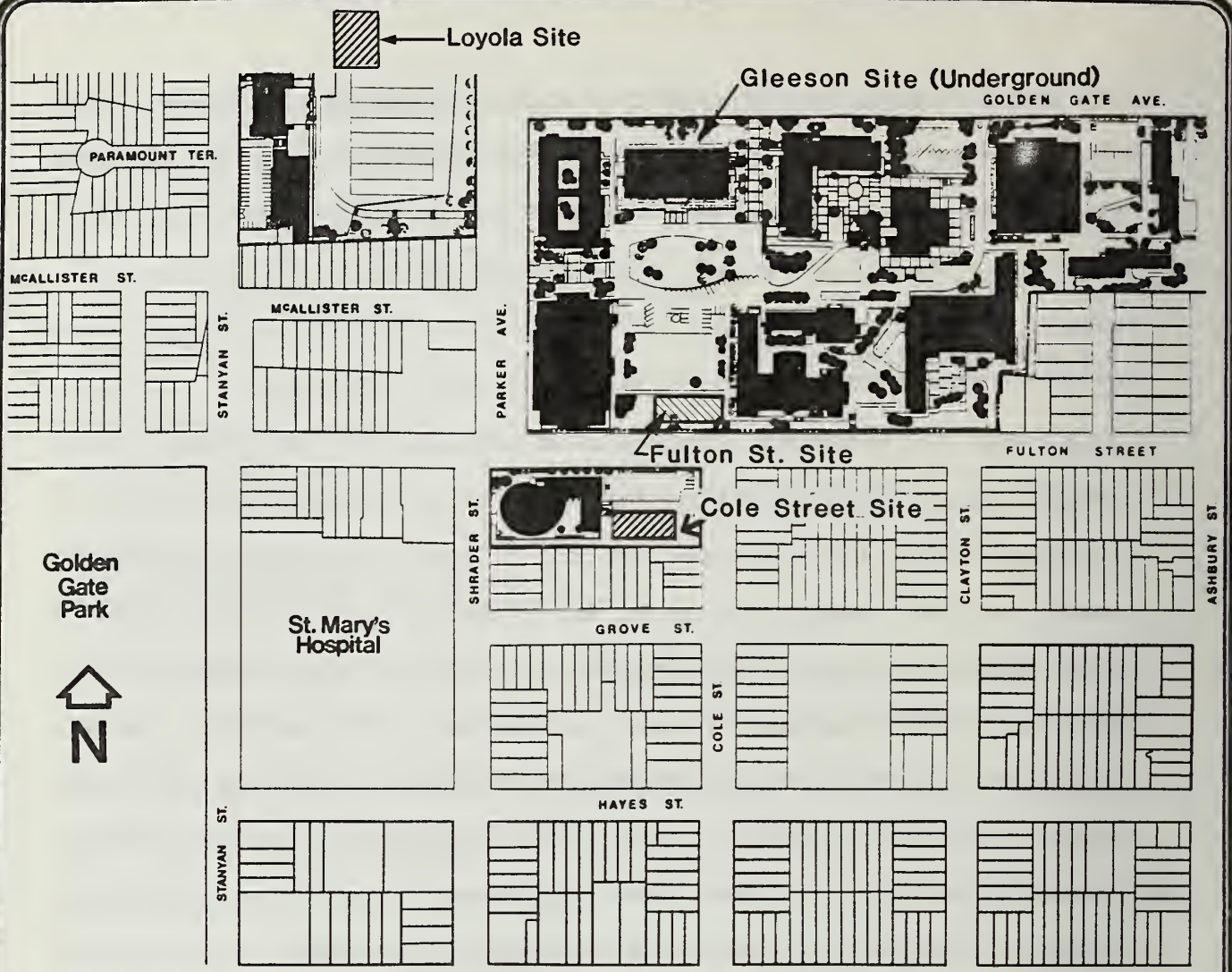


FIGURE 18

ALTERNATE COGENERATION FACILITY SITES

Scale: 1"=350'

ALTERNATE SITES

USF COGENERATION SYSTEM

SOURCE: Bendix Environmental Research, Inc., and Pflueger Architects

Alternative 4a.
9.5 mW Cogeneration Facility at Cole St. Site

This alternative proposes construction of a 9.5 mW Cogeneration Facility between the Kendrick Hall Addition and Cole St., in Lot 1, Assessor's Block 1190 (See Figure 19, p. 103). The actual structure itself would cover about 7,200 sq. ft.. The cogeneration building would be approximately 60 ft. x 120 ft. x 26 ft., with the southeastern third of the building stepping down from 26 ft. to 16 ft. in height toward Cole St. This site is currently an unmaintained, unimproved area, dominated by a single, steep, southwest-facing slope. Several native Cypress and Juniper trees grow on this slope.

The Cole St. building would be built into the slope east of Kendrick Hall Addition (see Figure 20, p. 104). The exterior of the structure would be textured, colored concrete and would be landscaped with trees and vines to integrate the facility with the site. A 4,500 sq. ft. pedestrian plaza would be created on top of the upper level of the facility (five ft. below Fulton St.) and would be available for student and public use. An existing parking lot bordering the northern edge of this alternative site would remain, as would about 11,000 sq. ft. of open space to the east of the site. An existing stairwell would provide access from the pedestrian plaza to the lower levels of the parking garage under Kendrick Hall to the west. A ramp would connect the pedestrian plaza to the first floor of Kendrick Hall Addition. The plaza and adjacent open area would both be landscaped. This alternative would be 30 ft. from the nearest residences along Grove St.

Access to the building would be provided by a service door on the eastern side of the structure. An existing service drive would be extended to connect this entrance to Cole St. The service drive would be used during

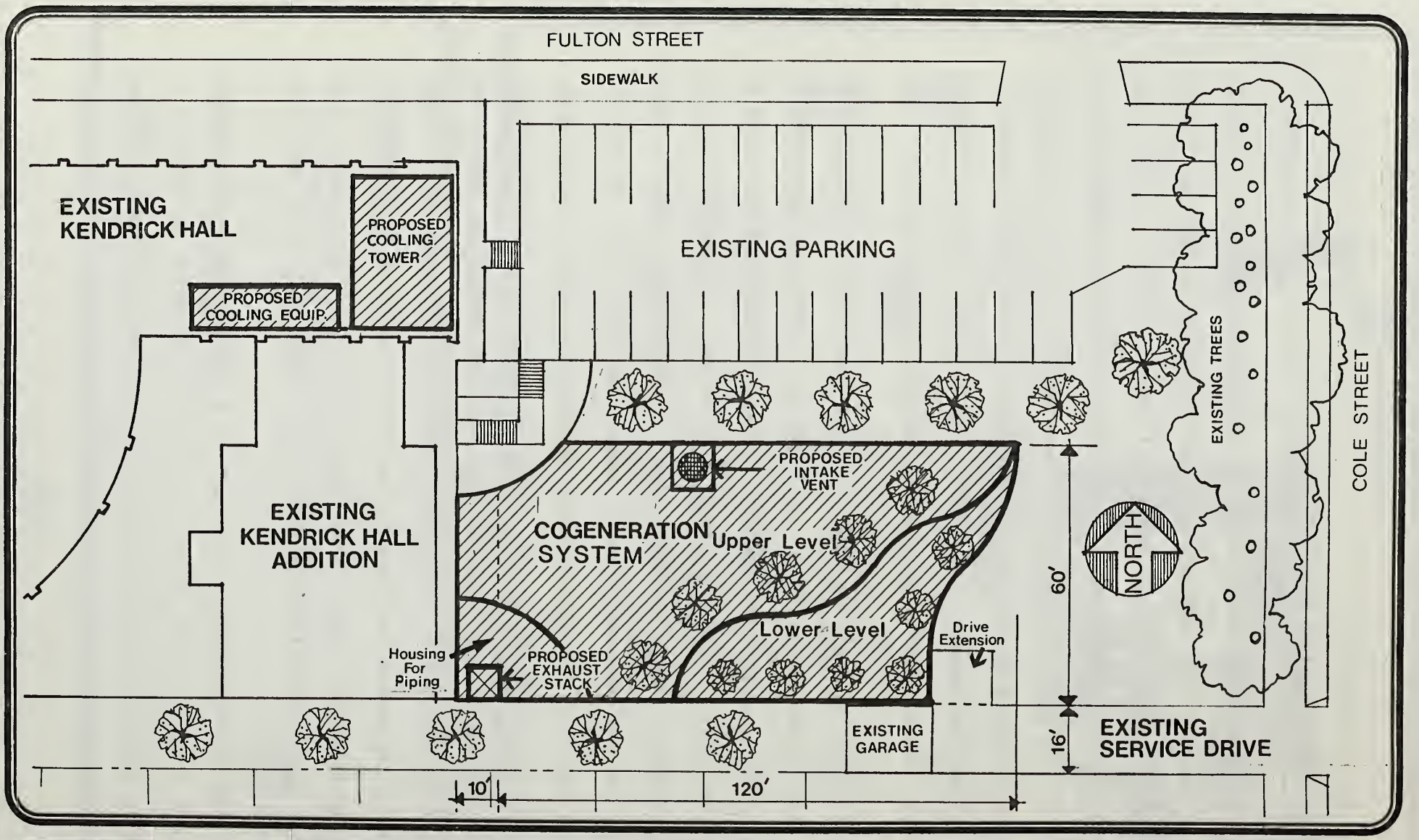


FIGURE 19

SCALE: 1/32"= 1'0"

COLE ST. ALTERNATE SITE PLAN

USF COGENERATION SYSTEM

SOURCE: Bendix Environmental Research, Inc., and Pflueger Architects

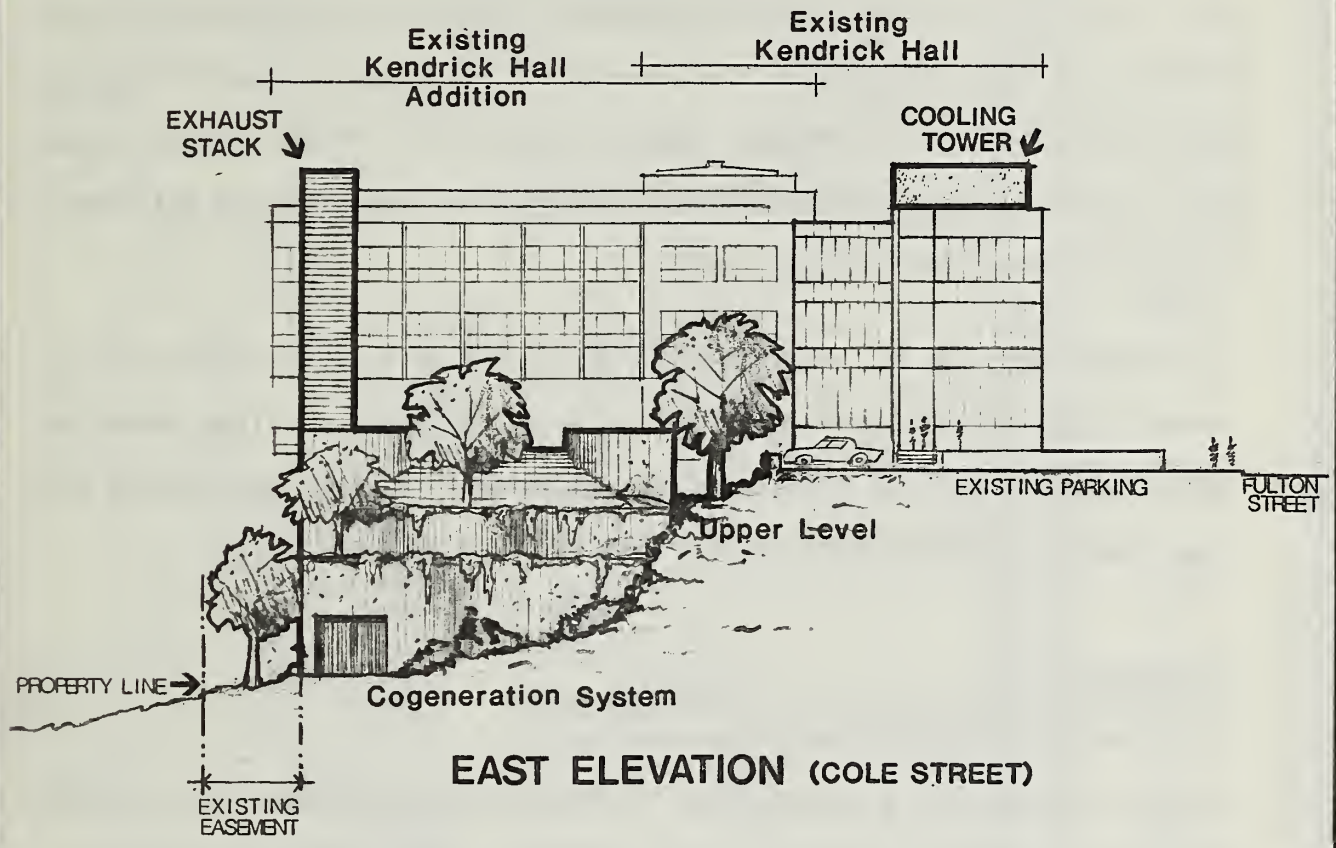


FIGURE 20

SCALE: 1/32" = 1'0"

COLE ST. ALTERNATE SITE EAST ELEVATION — PROPOSED PROJECT OUTLINE

USF COGENERATION SYSTEM

SOURCE: Bendix Environmental Research, Inc., and Pflueger Architects

the day as a truck loading space and at night as a parking space for the night operator.

An 80 ft. tall exhaust stack (as measured from the ground on the southeast side of the Kendrick Hall Addition) would be located on the southwest corner of the facility's roof and would rise about 10 ft. above the roof of the adjoining Kendrick Hall Addition. Material and finish of the exhaust stack would be selected to blend with that of Kendrick Hall and Kendrick Hall Addition and thus minimize visual impact.

A cooling tower (24 ft. x 22 ft. x 13 ft.) would be located on the roof of Kendrick Hall. The tower would be oriented to the prevailing winds to maximize efficiency in dispersing air emissions. A base surrounding the tower would contain potential spill from the cooling tower.

Alternative 4b.
9.5 mW Cogeneration Facility at Gleeson Site

In this Alternative, a Cogeneration Facility would be located in the basement of the planned Gleeson Library Addition. This Library Addition is different from the existing Gleeson Library basement as described for the proposed project. The library addition site proposed in the USF Institutional Master Plan Supplement, May 1983, would be on Assessor's Block 1145, north of Gleeson Library. The site is bordered by Golden Gate Ave. to the north and by Xavier Hall to the west (see Figures 21 and 22, pp. 106 and 107); it is currently used for student and faculty parking. The potential library addition is currently in early planning stages and construction would not be anticipated to begin before early 1996. The Cogeneration Facility would be structurally designed to support future construction of the library addition above it.

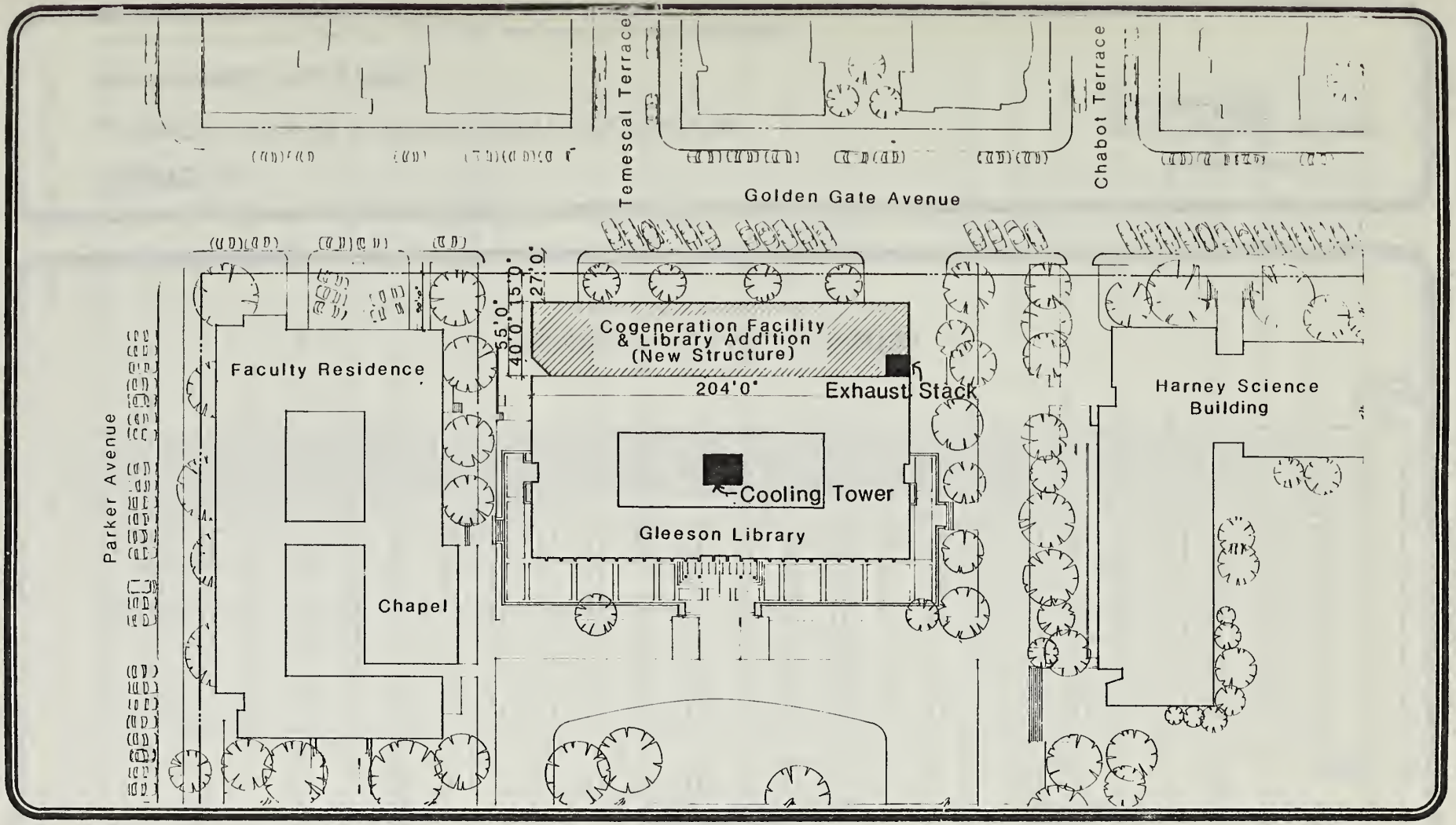


FIGURE 21

GLEESON LIBRARY ADDITION ALTERNATE SITE PLAN

USF COGENERATION SYSTEM

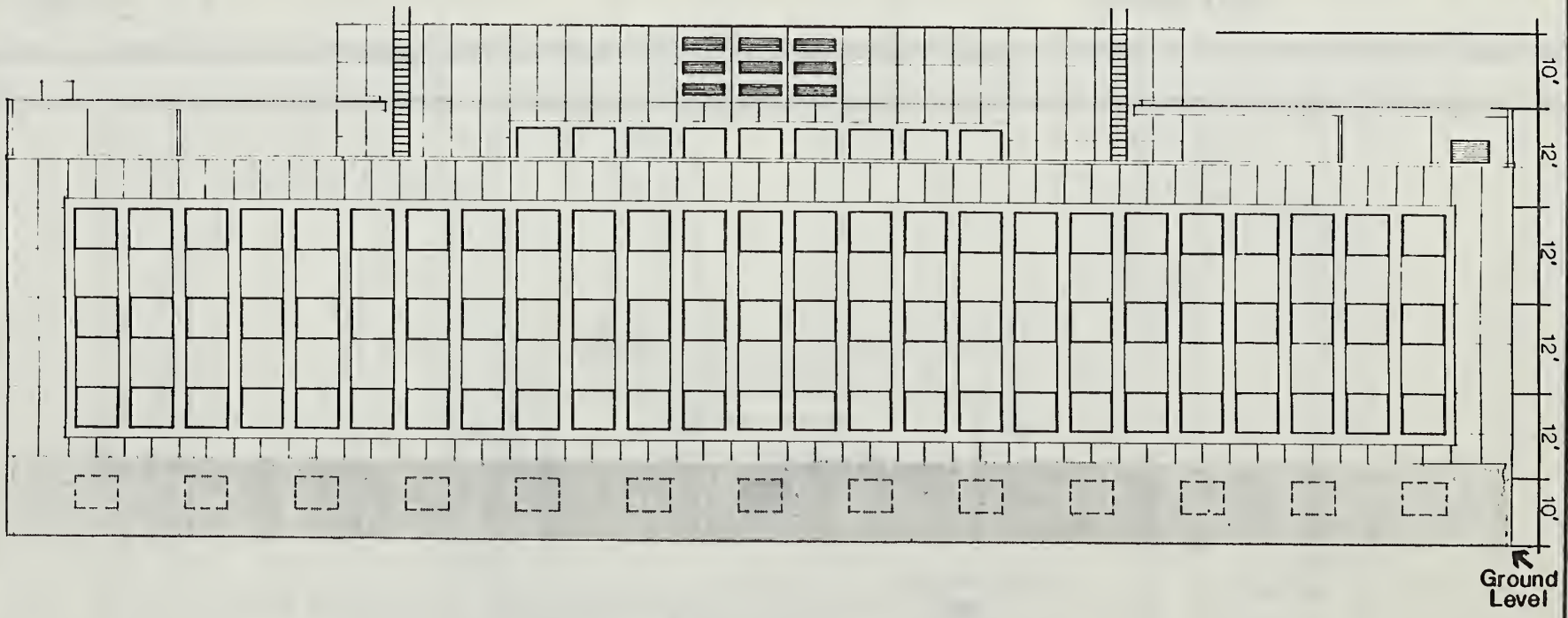
Source: Bendix Environmental Research, Inc. and Pflueger Architects

SCALE: 1"=80'

PROJECT SITE

PROPERTY LINE

N



GOLDEN GATE AVE. ELEVATION

FIGURE 22

GLEESON LIBRARY ADDITION SOUTH ELEVATION

USF COGENERATION SYSTEM

Source: Bendix Environmental Research, Inc. and Pflueger Architects

SCALE: 1"=20'

PROPOSED PROJECT LOCATION

Prior to construction of the library addition, the Alternatives 4b Cogeneration Facility would have approximate dimensions of 200 ft. x 40 ft. x 23 ft. Internal volume would be similar to Alternative 4a. The structure would be set eight ft. below surface level, extending 15 ft. above the ground. A cooling tower (24 ft. x 22 ft. x 13 ft.) would be located on the penthouse floor of the adjoining 68 ft. tall Gleeson Library to the south. The exhaust stack would be located at the northeast corner of Gleeson Library and would be approximately 80 ft. above ground level and 12 ft. taller than Gleeson Library. The facility would be set back 10 ft. from Golden Gate Ave.

The Gleeson Memorial Library Addition would probably be a four-story building with approximate dimensions of 200 ft. x 40 ft. x 60 ft. (extending about 45 ft. above the Cogeneration Facility). The cogeneration plant would occupy the basement of this structure. (Should USF decide to build the library addition, it would be subject to independent environmental evaluation prior to construction.)

Alternative 4c.
9.5 mW Cogeneration Facility at Fulton Site

This Cogeneration Facility Alternative would be located on Fulton St. approximately 40 ft. west of Campion Hall, 90 ft. east of St. Ignatius Church, and 10 ft. north of the USF property line on Fulton St., in Lot 1 of Assessor's Block 1145. The Fulton St. site is a level, grassy field next to the east facing slope of Fulton St. The southern boundary of the site is a retaining wall which drops down approximately 10 ft. to the Fulton St. sidewalk. This alternative site contains three mature trees; one Araucaria and two holly trees.

A 50,000 sq. ft. administration building was proposed for this site in the 1979 USF Institutional Master Plan; construction would not be anticipated before 1990. The administration building could be built above the cogeneration facility. The foundation for the Cogeneration Facility would be designed to support further construction. The horizontal dimensions of the Fulton St. Cogeneration Facility building would be the same as for Alternative 4a. A plaza or roof deck would be built on the top of the facility, 20 ft. above Fulton St., and would be removed at the time of administration building construction, should it occur. (The administration building would be subject to independent environmental evaluation prior to construction.)

The Fulton St. Cogeneration Facility would be set approximately 10 ft. underground, extending 10 ft. above ground. The roof of the cogeneration building would be 20 ft. above Fulton St. A 13 ft. tall cooling tower would be located on a portion of the cogeneration building roof. The combined height of the cooling tower and cogeneration building would measure about 23 ft. above ground level and 28 ft. above Fulton St. If the proposed administration building were completed, the cooling tower would be moved to the roof of the administration building. The cogeneration building would then constitute the basement of the administration building. An exhaust stack would be on the east end of the facility, approximately 50 ft. from Campion Hall. The exhaust stack height would be approximately 75 ft. above Fulton St., extending 12 ft. above Campion Hall.

Alternative 4d.
9.5 mW Cogeneration Facility at Loyola Site

This alternative proposes a 9.5 mW Cogeneration Facility located under the west end of the parking lot at Turk St. and Parker Ave. adjacent to the

proposed site for the Health and Recreation Center. The Cogeneration Facility would be completely separate from the Health and Recreation Center buildings and could be built independently of that complex. The facility would be underground, except for an entrance on Turk St., two five ft. tall, 13 ft. diameter ceramic cooling towers, two air intake stacks (28 ft. and 8 ft. tall) and a 40 ft. tall exhaust stack. The cooling towers, intake stacks and exhaust stack would be located in a row on the west edge of the parking lot (see Figure 11, p. 39). The proposed Cogeneration Facility would be a 7,200 sq. ft. reinforced concrete building with a volume of 160,000 cu. ft.

This site was not identified as an alternative site for a Cogeneration Facility in the May 1979 USF Master Plan or the February 1983 Master Plan Supplement. In order for USF to apply for the Conditional Use Authorization necessary for construction of this Alternative, the filing of an Amendment to its Master Plan would be required.

The project sponsor has rejected a 9.5 mW Cogeneration Facility proposal at all of the aforementioned sites principally due to both neighborhood and University concern over the magnitude of the Facility and doubts as to whether a Cogeneration Facility of this size would be an appropriate use in the predominantly residential area. Reasons for rejection of this alternative by the University are: operational impacts (noise and air quality), visual considerations, and construction related traffic and noise impacts.

Alternative 5. Alternate Energy Sources

Alternative 5a. Photovoltaic Cells

This alternative would supply electricity to the USF campus using photovoltaic cells and would include the possible sale of electricity to PG&E. A photovoltaic cell converts light energy to electrical energy. Individual cells are grouped in panels which are exposed to sunlight; an electric current is generated when sunlight strikes the panels. The electricity could be used immediately or stored in batteries.

Alternative 5a. would require a minimum of 560,000 sq. ft. (13 acres) of photovoltaic panels to meet the average daily USF electric demand of 25,000 kWh. The project sponsor has rejected this alternative because of space limitations and cost. USF does not have sufficient open space for the number of panels that would be needed to meet USF electricity demand.

Alternative 5b. Windmills

This alternative would supply the electricity needs of USF by using windmills; excess electricity generated could be sold to PG&E. Wind rotates the blades of the windmill which turn an electric generator. Above a set windspeed the blades rotate at a constant speed and electricity is generated. Windmills must be installed a minimum of 100 ft. from buildings of similar height and 200 ft. from tall trees to work efficiently. Open space areas on the USF campus would have to be selected for the windmills. Initial evaluation indicates that there are not enough open space sites at USF to accommodate the number of windmills that would be needed to meet USF's electricity demand.

The project sponsor has rejected Alternative 5b. on the basis of its land requirement, and neighborhood concern over windmills on the USF campus.

Alternative 6. Alternate Cogeneration Fuels

Alternative 6a. Liquid Fuel

Alternative 6a would be the same as the proposed Cogeneration System except that a liquid fuel, such as #2 diesel or fuel oil, would be burned instead of natural gas. Use of liquid fuel would require installation of a subsurface storage facility. An access lane from the street to the storage facility would be constructed to accommodate tanker trucks.

Energy, land use and visual impacts of Alternative 6a would be the same as those of the proposed Cogeneration System. Construction, hazards, noise, traffic and air quality impacts of Alternative 6a would be greater than those of the proposed Cogeneration System.

Construction impacts would include a greater volume of excavation and longer site preparation and construction time because the fuel storage facility would be larger than that of the proposed project.

The greater hazard risks relate to larger volumes of liquid fuel that would be stored on campus at all times and the tanker trucks that would travel through the neighborhood routinely. Although diesel fuel is not as flammable as natural gas,[1] the possibility of an accident occuring during delivery and storage of fuel would be greater than with the Cogeneration System in which fuel would be delivered through a subsurface gas main. These monthly tanker truck deliveries[2] would also increase traffic and noise impacts in the immediate vicinity of the project.

Alternative 6a would have greater impacts on air quality than the proposed project. Combustion of liquid fuels would generate greater amounts of air pollutants than burning of natural gas: about 1.1 to 1.5 times greater nitrogen oxides (NO_x), approximately 100 times more sulfer dioxide (SO_2) and over 100 time more particulates.[3] The Bay Area Air Quality Management District (BAAQMD) would require low sulfur fuel (0.1% sulfur) to be used to reduce SO_2 emmissions. Availability of 0.1% sulfur fuel is currently unpredictable. Low sulfur fuel is currently more expensive than natural gas.[4]

The project sponsor has rejected Alternative 6a on the basis of its air quality, noise, traffic, hazard, and construction impacts and its cost.

Alternative 6b. Solid Waste Fuel

This alternative would retain most elements of the 9.5 mW Cogeneration Facility (Alt. 4). The same quantities of steam and electricity would be produced for sale. The boiler and turbine generators would be retained but solid waste fuel (Processed campus garbage) would be burned rather than natural gas.

Facilities for storage, processing (shredding and removing non-combustibles) and burning of about 100 tons/day of raw garbage would be constructed in addition to the 9.5 mW Cogeneration Facility. Additional space would also be required to house pollution control equipment. Space requirements for this alternative would require selection of a different, larger project site elsewhere on the USF campus. The four alternative Cogeneration Facility locations (see Alternative 4) would be the largest sites on the USF campus that could house this alternate facility. It would not be known, without a

detailed engineering study, whether these sites could house a solid waste fuel Cogeneration Facility.

This alternative would generate more short-term construction impacts than the proposed Cogeneration System, due to the increased project size and longer construction period. Short-term construction impacts would include traffic, air emissions and noise associated with construction equipment.

Utility impacts of Alternative 6b. would be less than those of the proposed project. Use of solid waste as a fuel would reduce San Francisco's solid waste disposal problem and revenue could be earned by selling salvaged glass and metal (non-combustibles) in addition to steam and electricity.

Energy impacts of this alternative would be less than those of the proposed Cogeneration System. This alternative would use less natural gas than the proposed cogeneration project, as solid wastes would be the primary fuel used.

Land use, transportation, air quality, hazard, and noise impacts of alternative 6b would be greater than those of the proposed Cogenerations System. A greater amount of land would be required for this alternate Facility.

The use of air pollution control devices would result in height and land coverage requirements beyond those of the proposed project; these control devices could be greater than 40 ft. tall. Pollution control technology would increase capital costs more than three-fold.

This alternative facility would generate a greater variety of air pollutants in larger amounts than would the proposed cogeneration project. Air pollutants which would be emitted by a solid waste-fueled facility, but not by a

natural-gas fueled facility, include: non-methane hydrocarbons, hydrochloric acid, heavy metals, polychlorinated biphenyls (PCBs) and possibly dioxins.[5,6] The Bay Area Air Quality Management District would require application of Best Available Control Technology to reduce such emissions. Control technologies which could be required for this alternative include: (1) baghouse scrubbers (particulate removal); (2) spray dryers (sulfur dioxide and hydrochloric acid removal); (3) ammonia injection (nitrogen oxide reduction); (4) calcium hydroxide injection (sulfur dioxide and sulfuric and hydrochloric acid removal); and (5) incineration temperatures of 1800° Fahrenheit or more (PCB and dioxin removal).

Hazard impacts would be greater for Alternative 6b. The odor and rodent hazard associated with storing tons of raw garbage on campus could require mitigation.

Noise impacts generated by this alternative would be greater than the proposed project or Alternative 4. Additional long-term impacts would include noise from truck trips to and from the facility, dumping of waste into storage hoppers, transfer of waste to processing areas, glass and metal separation and fuel shredding prior to combustion.

Transportation impacts would include truck trips (twice weekly) to deliver solid waste to the facility and carry away glass, metal and ash. The project sponsor has rejected this alternative on the basis of its cost and land use, transportation, air quality, hazard, and noise impacts.

Alternative 7.
Cogeneration System Not Built

In this alternative, none of the existing campus boilers would be replaced, and conventional natural gas combustion to produce steam would continue. USF would not produce electricity. The University would continue to use about 988,000 therms/yr. of natural gas as at present. A boiler in the proposed Recreation Center (of a size similar to that of the combined boilers in Loyola Hall and Loyola Gym) would supply that facility with steam. A Recreation Center boiler would produce air emissions similar to existing boilers. Noise generated by a Recreation Center boiler would be inaudible.

Noise, traffic, land use, hazard, and air quality impacts associated with the cogeneration project would not occur. Hazard, noise and air quality impacts generated by the central steam plant and individual building boilers would remain at present levels. University energy costs could not be substantially reduced through further energy conservation measures as all recommendations of the 1979 PG&E Energy Utilization Audit of USF have been implemented.[2]

The project sponsor has rejected this alternative because it fails to meet the sponsor's objectives to (1) partially replace an aging steam plant now in use for campus heating, (2) insulate itself against rising energy costs by reducing energy dependence on public utilities, and (3) minimize depletion of non-renewable fossil fuel through more efficient use of fuel.

Alternative 8.
No Project

Loyola Hall, Loyola Gym, Negoesco Soccer Field and the three parking lots on the proposed Health and Recreation Center site would remain in their present condition. USF would depend on Memorial Gym, Loyola Gym and Ulrich Field for its recreational activities. A recreational facility would not be available for community use. USF would continue to use City swimming pools for physical education classes. The University would have to use other campus facilities for their University and Alumni Clubs. Declining enrollment at USF has been attributed, in part, to a lack of recreational facilities and would continue if the proposed Recreation Center were not built.

In this alternative, none of the existing campus boilers would be replaced, and conventional natural gas combustion to produce steam would continue. USF would not produce electricity for campus use. The University would continue to use about 988,000 therms/yr. of natural gas as at present.

Noise, air quality, traffic, land use, visual, hazard, and construction impacts would not occur with this alternative.

The project sponsor has rejected this alternative because it does not meet its objective to provide the University with recreational facilities beyond those presently available and to make use of the Loyola Hall site. The University would not meet its objective to partially replace an aging steam plant now in use for campus heating and would not implement the final phase of its energy conservation program thereby minimizing depletion of non-renewable fossile fuel through more efficient use of fuel.

NOTES - Alternatives

1. National Fire Protection Association Standards, 325M, 1977, Fire Hazard Properties of Flammable Liquids, Gases and Volatile Solids, p. 130.

2. Harold Hansen, USF Chief Engineer, telephone conversation, 3 November 1983.

3. Primer on Natural Gas and Methane, Report of the Natural Gas and Methane Task Force, Scientists' Institute for Public Information, November, 1979.

4. Wolf, Douglas., Air Quality Engineer, BAAQMD, telephone conversation, 3 November 1983.

5. J. Jahnke, J. Cheney, R. Rollins and C. Fortune, A Research Study of Gaseous Emissions from a Municipal Incinerator, Air Pollution Control Association Journal, v. 27, 1977, p. 747.

6. W. O'Connell, G. Stotler, R. Clark, Emissions and Emission Control in Modern Municipal Incinerators, Proceedings, 10th National Waste Processing Conference, American Society of Mechanical Engineers, 1982, p. 285.

CHAPTER VIII. SUMMARY OF COMMENTS AND RESPONSES

This section contains summaries of comments on the Draft Environmental Impact Report (DEIR) for the proposed Health and Recreation Center and Co-generation System at the University of San Francisco and responses to those comments.

All substantive comments made at a public hearing before the City Planning Commission on April 25, 1985, have been reviewed and are presented herein by direct quotation. Written comments on the Draft EIR were received between March 22 and May 10, 1985. Where public hearing and letter comments were substantially the same, material was not repeated. Editing has eliminated repetitive and non-essential material only.

Comments and responses are grouped by topics, which generally follow the order of material in the Draft EIR. Each group of comments is followed by its responses. Because the subject matter of a topic may overlap that of another topic, the reader may have to refer to more than one group of comments and responses to review all information on a topic.

Some comments do not pertain to physical environmental issues but are responded to for the purpose of providing additional information.

These comments and responses will be incorporated into the Final EIR as a separate chapter. Draft EIR text changes presented in the comments and responses chapter also will be incorporated into the Final EIR.

LIST OF PUBLIC AGENCIES, ORGANIZATIONS AND PERSONS COMMENTING

- John Bardis, testimony at public hearing of April 25, 1985.
- Susan Bierman, Commissioner, San Francisco Planning Commission, testimony at public hearing of April 25, 1985.
- Elizabeth Brennan, testimony at public hearing of April 25, 1985.
- H. Fred Burger, written comments of May 6, 1985.
- Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985 and testimony at public hearing of April 25, 1985.
- George Coan, testimony at public hearing of April 25, 1985.
- Tina Burgess Coan, testimony at public hearing of April 25, 1985.
- Milton Feldstein, Air Pollution Control Officer, Bay Area Air Quality Management District, written comment of May 8, 1985.
- Thor Firing, Temescal Terrace Association, testimony at public hearing of April 25, 1985.
- Hal Freedman, written comments of May 5, 1985.
- Georjean Hewitt, written comments of April 5, 1985.
- Bob Lee, Francisco Heights Civic Association, testimony at public hearing of April 25, 1985.
- John Smalley, testimony at public hearing of April 15, 1985.
- Mark Terjesen, written comments of April 15, 1985.
- Mary Hart Thompson, written comments of May 2, 1985.
- Ted Thompson, testimony at public hearing of April 25, 1985.
- Joel Vantresca, Haight-Ashbury Neighborhood Council, written comments and testimony at public hearing of April 25, 1985.
- Calvin Welch, Haight-Ashbury Neighborhood Council, testimony at public hearing of April 25, 1985.
- K.L. Wong, MUNI, written comments of March 27, 1985.

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ENERGY

Comments:

"What's to prevent the university from operating the plant beyond what it needs to sell electricity to PG&E for a profit?

"5-10% of the electricity will be sold to PG&E. The university wants to go into the business of producing electricity, which will permit it to sell its power to PG&E." (Joel Ventresca, Haight-Ashbury Neighborhood Council, written comments of April 25, 1985)

"...information is not presented in a fashion readily comprehendable to laypeople. This is particularly troublesome for data describing energy consumption and production...Wherever possible, please compare existing conditions... with those anticipated after project completion. More tables and the use of standard units will be helpful...

"Page 2. Provide a table summarizing USF's current and anticipated consumption, capacity of plant, and excess output...

"Is excess capacity based on initial requirements or demand after Master Plan completion?

"Page 32. Table comparing energy use to capacity of system, etc. appropriate here...

"Page 56. How much electricity will PG&E purchase? How often?

"Page 57. Again, economic incentive to run at full capacity. If not tied to USF needs, isn't this a commercial project?

"Page 58. Hard to understand numbers on electrical generation and consumption. How many hrs/day is plant operating in relation to figures on consumption? Putting these figures in a table would be helpful.

"Figures on amount of electricity available for sale vary throughout report. What is correct figure?...(Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

The interrelationships of steam and electricity demand and production are clarified in revisions to the DEIR.

The first two paragraphs of the EIR Energy Impacts section on Steam, page 57, have been revised for clarity as follows:

"The Cogeneration System would produce 35-50 psi steam, which would provide for the average demand of existing buildings heated by the present boilers and of the new Recreation Center minus one percent. On cold winter mornings, the new plant's capacity would not be sufficient, and one or more backup boilers would have to be used to provide additional steam heat.[3a]

"Demand for steam to heat USF campus buildings varies on a daily and seasonal basis. The present Gleeson Library system operates about 16 hrs/day, from 6 AM to 10 PM. The existing boilers in individual buildings operate 24 hrs/day. Annual campus steam demand average is approximately 420,000 therms/year, supplied approximately half by the Gleeson Library boilers and half by the other boilers. The Recreation Center would increase average demand to 482,000 therms/year. The cogeneration facility would produce an average of 478,000 therms/yr., one percent less than the average demand.

"See new Table 2A, page 126, for a summary of steam demand and use characteristics with and without the project. The cogeneration system would operate at or near capacity for about 16 hours a day, from 6 AM to 10 PM, and at a lower level or not at all for the rest of the night, depending on the steam requirements for heating dormitories or swimming pool water. Steam cannot be generated and stored for use at another time. Energy conservation programs at USF have reduced steam demand below the cited demand figures; new consumption figures are not yet available.

"If additional buildings described in the Institutional Master Plan were to be built on the main campus, a small amount of additional steam to partially supply these buildings could be generated by operating the system at capacity for a full 16 hours on days when this would not otherwise occur. Operation 24-hours a day would not help to supply additional buildings because the extra steam would be generated at a time of day when there would be no use for it. Further implementation of the Institutional Master Plan would have to include additional steam production facilities, since the cogeneration system could not produce enough steam to heat several additional buildings. For a schematic representation of the relationship between steam demand and capacity see new Figure 15A, page 127. The Lone Mountain portion of the campus is too far from the main campus for efficient connection to the proposed cogeneration system and would continue to have independent steam generation provisions (the present Lone Mountain buildings have their own boilers for steam)."

The following new footnote 3a, referenced in the above text, has been added to EIR page 60:

"For up to 6 hours, from 6 AM to noon, for up to 90 days per year, depending on weather conditions."

New Table 2A. USF Steam Use and Production Characteristics With and Without the Proposed Project.

	Present	With Project
average daily demand, therms/day	1,150	1,320
maximum daily demand, therms/day	1,450	1,670
average annual demand, therms/yr	420,000	482,000
cogeneration average production, therms/day	n/a	1,310
cogeneration average production, therms/year	n/a	478,000
cogeneration average production as percent of average demand	n/a	99%
cogeneration maximum production, therms/day[1]	n/a	1,395
cogeneration daily maximum production, as percent of maximum demand	n/a	87%

1. Assuming a cold winter day with maximum heating load but not 24-hour full capacity operation since classrooms, library, etc. do not have to be heated all night.

Sources: Robert E. Fishman, P.E., FMC Engineers, cogeneration plant designers, and Bendix Environmental Research, Inc.

Paragraph two of the Electricity section on EIR page 58 has been revised as follows:

"Campus electricity use was 9.2 million kWh in 1984 (not including Lone Mountain), which would be equivalent to about 74% of the 12.4 million kWh average net annual electrical output of the proposed plant. Annual demand

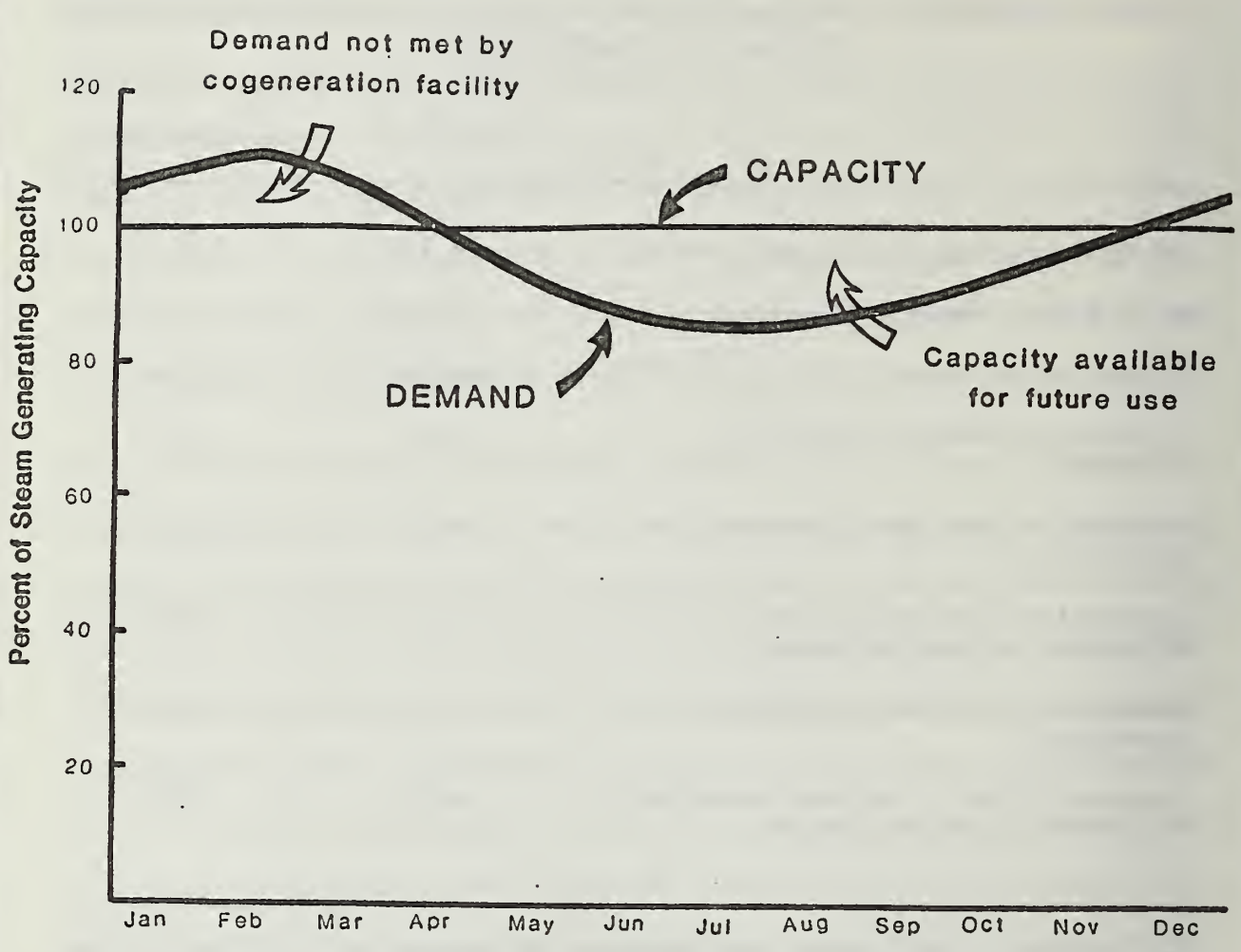

FIGURE 15A

SCHEMATIC REPRESENTATION OF HEATING DEMAND VERSUS CAPACITY

USF COGENERATION FACILITY

Source: Bendix Environmental Research,Inc.

from existing buildings is expected to increase to 11.5 million kWh as a result of the addition of computer equipment. The Recreation Center would increase demand by about 1.9 million kWh, bringing the average annual demand to 13.4 million kWh. There would be no net average electrical surplus if the Recreation Center were built: USF would buy a net annual average of 1.0 million kWh, 8% of campus demand, from PG&E. At certain times of year, when cold weather creates maximum steam heating demand, USF would generate more electricity than needed and the surplus would be sold to PG&E (an annual average of 0.9 million kWh). USF electrical use and production characteristics with and without the proposed project are shown in new Table 2B, page 129. If total Institutional Master Plan buildout were to take place, the annual average demand for electricity would increase. At cold times of year part of this increase could be met from electricity which would otherwise be sold to PG&E. Any additional buildings would increase the annual average amount of electricity that would have to be purchased from PG&E."

The second sentence of the last paragraph on page 58 has been deleted.

The first complete paragraph of EIR page 2 has been revised to read:

"The Cogeneration System would produce both steam (478,000 therms per year) and electricity (12.4 million kilowatt-hours per year). The steam produced would be used to heat existing USF campus buildings and the Recreation Center. Electricity would be generated for use on campus. On the coldest days, production of the required amount of steam would result in production of more electricity than would be used on campus, and this electricity would be sold to PG&E. At warm times of year, when generation of required steam would result in the production of less electricity than demand, USF would buy electricity from PG&E."

Table 2B. USF Electrical Use and Production Characteristics With and Without the Proposed Project

	Present	With Project	
		Not Including Recreation Center	Including Recreation Center
annual average demand in million kilowatt-hours (kWh)	9.2[1]	11.5[2]	13.4
annual average gross cogeneration system production (million kWh)	n/a	12.9	12.9
annual average cogeneration system consumption (million kWh)	n/a	0.5	0.5
net average cogeneration system production (million kWh)	n/a	12.4	12.4
annual average surplus power available for sale (million kWh)	n/a	0.9	-1.0[3]
annual average surplus power available for sale as percent of net production	n/a	7%	-8%[3]

1. 1984 total campus use, not including Lone Mountain.

2. The increase in projected demand from existing buildings is due to anticipated installation of computers which use electricity and give off heat which creates electric air conditioning load.

3. Note that these negative figures represent deficits.

Sources: Robert E. Fishman, P.E., FMC Engineers, cogeneration plant designers, and Bendix Environmental Research, Inc.

"Cogeneration equipment would include a natural gas fired engine-generator, a boiler, piping and controls. A heat radiator unit measuring 11 ft. x 9 ft. x 8 ft. would be placed on the Gleeson Library roof behind the existing parapet, surrounded by an unroofed, acoustic enclosure."

The requested tables (2A and 2B) have been inserted in the Impacts Chapter, as indicated above, rather than in the Summary or Project Description. The end of the first complete paragraph on EIR page 22 has been corrected to read: "The Cogeneration System would operate 16 to 24 hours a day, depending on demand for steam, 365 days a year."

As indicated on DEIR page 58, there would be a maximum increase in USF natural gas consumption of about 1,000,000 therms per year. This would be approximately equivalent to the natural gas consumption of 800 residential units[1] or about twice the natural gas consumption of a million sq. ft. downtown high-rise building.[2]

The second sentence on DEIR p. 26 has been revised to read: "Engine exhaust would in turn be routed to a heat exchange unit to produce 35-50 psi[2] steam (maximum production of 1,395 therms/day)."

The Electricity section on EIR page 26 has been revised to read:

"The proposed facility would have a maximum capacity of 1,650 kilowatts (1.7 mW) and would produce a net average of 12.4 million kilowatt-hours (kWh)/year.[5,6,6a] This electricity would be fed into the University electrical distribution system supplying campus buildings with power. Based on projected average steam demand for the University, the Cogeneration System would fall short of meeting average annual electricity demand by approximately 1.0 million kWh, or 8%. This deficiency of power would be made up by power purchased from PG&E. Electrical power would be purchased from PG&E whenever the Cogeneration System was not operating because there was no demand for steam."

As indicated on DEIR page 22, no power would be generated beyond that generated in the process of producing steam for building heating needs because "If USF were to run the electrical generator at a time of no steam demand, venting exhaust heat to the environment without benefit of heat recovery, the system would not be economical...Electrical power would be purchased directly from PG&E during periods when USF does not require steam." No electricity beyond space heating steam demand would be generated, because it would be uneconomical to do so and because relevant laws only require PG&E to buy cogenerated electricity at "avoided cost" rates. Any additional electricity would be expensive to generate and could not be sold for as much as the cost to generate.

Footnote 6a has been added to EIR p. 31:

"Average production of electricity is less than theoretically possible on the basis of capacity because the system would not operate continuously at capacity,"

NOTES:

1. Calculated at 1,200 therms/unit based on Semler, Michael, Energy Conservation Potential for Natural Gas and Electricity: 1980-1990, Department of City Planning, November 1980, p. B-26.

2. Calculated on the basis of an average of 20 cubic ft. of natural gas consumed per sq. ft. of building per year, as given in the FEIR for The Downtown Plan, 1984, EE81.3, SCH 84032003, p. N.1.

ENERGY: GAS LINE

Comments:

"Page 26. What determines need for new gas line? When would it be installed? At what cost and who would bear?

"[Page 58] Again, what determines need for larger line? (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

A new gas line would be required if the present line proved unable to supply the required amount of gas at the required residual pressure. Tests of the existing natural gas supply line have not been made by PG&E yet. Such tests would probably be made before start-up of the facility so that the line could be replaced before operation begins if replacement were necessary. PG&E would pay for the new line.[1] The cost is unknown.

NOTE.

1. Jim Chandler, PG&E, telephone conversation of June 12, 1985.

ENERGY: EQUIPMENT SELECTION

Comments:

"Page 2. As the actual limit [unit?] is not yet selected, the EIR should provide a range of consumption, production, and impact figures for those under consideration...

"[Page 26] List other engines under consideration." (Dale Carlson, Stanyan/ Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

The first sentence of the second complete paragraph on DEIR p. 26 has been revised to read: "The Cogeneration System equipment would include a single natural gas fired, lean-burning engine such as the Waukesha model 9390 GL or the Cooper "Superior" model 165GTA, a waste heat boiler,...[the rest of the

sentence is unchanged] The former is currently favored and is the basis of EIR discussion except where otherwise indicated."[1]

The Waukesha engine is rated at 1,500 kW, with a maximum capacity of 1,650 kW. The Cooper engine is rated at 1,770 kW (18% greater), with a maximum capacity of 1,875 kW (14% greater). Because it is smaller, the Waukesha engine would generally have lesser impacts than the Cooper engine discussed in the DEIR. See response to comments on noise for discussion of differences in noise characteristics. The difference in capacity between the Waukesha and the Cooper engines is reflected in the following changes in the EIR: Page 2, line 5, "1.8" changed to "1.5."

Page 26, line 17, "1,875" changed to "1,650"; line 18, "1.9" changed to "1.7", "1,770" changed to "1,500", and "1.8" changed to "1.5."

Page 58, line 2, "1,875" changed to "1650" and "1,700" changed to "1,500."

Page 66, line 10, "1,875" changed to "1,500,"

NOTE:

1. Robert E. Fishman, P.E., telephone conversation of July 12, 1985.

ENERGY: INSTITUTIONAL MASTER PLAN REQUIREMENTS

Comments

"Page 88. Please identify electrical, steam needs for each project in Master Plan, with anticipated date of construction..." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

The schedule in the 1983 amendment to the USF Institutional Master Plan (the most recent version of this Plan) is no longer applicable and a new schedule is not available. Present plans do not call for any building in addition to the present proposal for the next six years.[1] Until additional buildings are designed it is not possible to give electrical and natural gas requirements (the building sizes given in the Institutional Master Plan are rough estimates). The Cogeneration facility would not be able to supply all of the electricity required by any additional buildings.

NOTE

1. Glenn Loomis, Plant Manager, USF, telephone conversation of June 12, 1985.

ENERGY: RELATIONSHIP BETWEEN PROJECTS

Comments:

"[Page 2] 'Projects are not dependent on each other.' However, plant is sized to meet Rec Center's needs. That relationship should not be slighted.

"Page 11. Again, relationship between projects..." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

As indicated on DEIR page 116, if the Cogeneration Facility were not built, a boiler would be included in the design of the new Recreation Center to provide for its steam needs.

The last sentence on page 11 has been revised to read: "Although the Cogeneration Facility has been sized to provide steam for the Recreation Center, these two projects would not be dependent on each other and could be built at different times."

LIST OF COGENERATION PROJECTS

Comments:

"Page A-30. This list [of cogeneration projects] should be updated." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

An updated list of California cogeneration projects is not available.[1]

NOTE:

1. Office of Raymond Tuvell, Cogeneration Manager, California Energy Commission, telephone conversation of May 29, 1985.

ENERGY: BOILER REPLACEMENT

As a result of examination of the condition of the existing Gleason Hall boilers, USF has decided to replace the two boilers it had planned to retain for generation of back-up heating steam with boilers of the same capacity. The old boilers require the addition of anticorrosion chemicals and frequent maintenance because of the lack of features found on newer boilers. The new boilers would be more efficient than the existing boilers, using 13% less fuel to generate the same amount of steam. The new boilers would produce less nitrogen oxide than the existing boilers because they would

have burners designed for low nitrogen oxide production. The new boilers would be quieter than the old boilers. The following text changes have been made to reflect replacement of these boilers:

Page 1, ¶1, line 5, "partially" has been deleted.

Page 12, end of ¶3, add "The other two existing boilers would be replaced with ordinary standby boilers of the same capacity."

"Page 22, paragraph 1, last sentence replaced by "(The other two existing boilers would be replaced by conventional standby boilers of the same capacity. The four boilers that would be replaced are approximately 25 years old and are near the end of their lifetime.)"

"Page 27, ¶1, last sentence revised to read: "Should the Cogeneration System require prolonged maintenance, heat would be provided by the two new conventional boilers which would be maintained on standby status."

"Page 30, line 7, delete "two."

"Page 62, second complete ¶, line 1, delete "two of;" line 4, delete "two."

"Page 70, second complete ¶, lines 4 and 7, change "two" to "four."

"Page 73, second complete ¶, line 5, change "two" to "four."

"Page 86, line 5, change "existing" to "standby."

ENERGY: LONE MOUNTAIN

Comments:

"Is Lone Mountain included in electrical distribution system?

"Any plans for second plant on Lone Mountain? (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

The campus electrical distribution system does not include Lone Mountain which would not receive electricity from the Cogeneration System. There are no present plans for a second plant on Lone Mountain.

AIR QUALITY: GENERAL

Comments:

"...the heating load alone will be double that of the heating load at present. That means that the pollution that I am going to experience from the heating load from those plants will be double what I have already experienced.

"I hate to think now that what we have done without any malintention is double the smog potential right in front of my house by virtue of doubling the amount of buildings on the heating plant...I know none of the neighbors know it. When you add that to an electrical generating facility, you're talking now about a plant that is going...to double again...the amount of pollution is going to be in the nature of four times what it was before.

"I might add that the power plant now has gone from merely a generation of steam, it's gone to the generation of power...

I really question if that's what the Planning Commission wants. Our area is considered R-1 residential....I feel the pollution there is going to be quite severe insofar as we don't have the dispersion we have now. We do have seven plants. We are going to end up with one." (John Smalley)

"If there's...an air pollution problem -- and it's hard to tell from this EIR whether or not these things are in fact going to be problems -- the university is going to suffer along with us. Those things need to be discussed." (Dale Carlson, Stanyan/Fulton Neighborhood Association, public hearing comments)

"...insufficient...discussion of the pollutants, ... particulate matters, solid particular matters." (Calvin Welch, Haight-Ashbury Neighborhood Council)

"...The Cogeneration System, which will replace two of USF's four steam boilers, is subject to BAAQMD regulations." (Milton Feldstein, BAAQMD)

"This project will clearly generate more air pollution than any other project being proposed by any other institution in the neighborhood." (Joel Ventresca, Haight-Ashbury Neighborhood Council, written comments)

"The proposed power plant will generate 60% of the total cumulative increase in nitrogen oxides and 40% of the total cumulative direct and indirect hydrocarbons, if we look at all the developments proposed in our neighborhood which was examined by the Planning Department just last December 1984." (Joel Vantresca, Haight-Ashbury Neighborhood Council, public hearing comments)

Response:

General air quality comments are responded to in this section; certain specific air quality comments are responded to in the following sections.

The heating load in the project area would not double. As stated on DEIR page 27, in ¶1, "New steam lines would connect the University Center,

Hayes-Healy Hall, Gilson Hall, and Kendrick Hall to the steam distribution grid as well as the Health and Recreation Center site." Since the Health and Recreation Center doesn't exist yet, it does not have an existing boiler; it would replace Loyola Hall which has a boiler. The increase in load on the Gleeson Library heating plant is more proportional to the change in square feet of building to be heated than it is to the number of buildings to be heated. The change would be from about 379,000 sq.ft.[1] to about 481,000 sq.ft.,[2] an increase of 27%.

As indicated on DEIR p. 61, the cogeneration facility would not produce particulates.

As indicated on DEIR page 29, the project is subject to BAAQMD regulations.

The cogeneration project would generate more direct air pollutants than other projects proposed in the general area but the direct air pollutants would be less than the cumulative indirect, transportation-associated production of carbon monoxide, hydrocarbons or particulates[3] and no laboratory fume hood exhaust chemicals of the type which may be emitted by the University of California at San Francisco Vision Research Laboratory would be involved. The cumulative direct and indirect air impacts of all proposed projects were found to be insignificant by the Greater Haight Ashbury Cumulative Assessment Report.

NOTES:

1. Including Gleeson Library, Harney Center, Campion Hall, St. Ignatius Church and Memorial Gymnasium but not including Phelan/McLaren Hall and Xavier Hall because, although they are on the existing distribution system they are heated routinely by an independent gas-fired hot water system, Glenn Yomis, Director Plant Services, USF, memorandum of May 13, 1985.

2. Including buildings in 1. plus Gillson Hall, Hayes Healy Hall, Cowell Hall, University Center and the Koret Health and Recreation Center.

3. Based on air pollutant emissions in the Greater Haight Ashbury Cumulative Assessment Report, Department of City Planning, 1984, page 58.

AIR QUALITY: COMPARATIVE INFORMATION

Comments:

"...comments are going to focus on the need for this EIR to provide comparative data, what the situation is now with the existing boiler plant and the...pollutants that it emits versus what's going to happen when the cogeneration plant, if it's installed, is installed." (Dale Carlson, Stanyan/Fulton Neighborhood Association, public hearing comments)

"...How much air pollution is generated at the site now? It's unknown. It's not identified in the EIR. Obviously, air pollution at the site will increase. What is the percentage and net increase in the air pollution if this project is built?" (Joel Ventresca, Haight-Ashbury Neighborhood Council, public hearing comments)

"How much air pollution is generated at the site now? Obviously, air pollution at the site will increase. What is the percentage and net increase in the air pollution if this project is built?" (Joel Ventresca, Haight-Ashbury Neighborhood Council, written comments)

"...information is not presented in a fashion readily comprehendable to laypeople. This is particularly troublesome for data describing...air quality impacts. Wherever possible, please compare existing conditions...with those anticipated after project completion. More tables and the use of standard units will be helpful..." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

"There are seven plants on the campus right now, one which serves six buildings, and the other six that serve the individual buildings, we are going to add to that a generating plant which is going to drive a 13 cubic inch engine -- excuse me, 13,000 inches -- ...that's about the equivalent of about 100 cars idling outside my bedroom window." (John Smalley)

Response:

A single new boiler would be expected to emit less air pollutants per unit fuel burned than the total of the existing old boilers because the newer unit would be designed to burn more cleanly. A single boiler would also have less heat loss during operation than a group of smaller boilers.

Since gas would be burned more efficiently, fewer air pollutants would be formed than if there were a group of boilers heating the same space. The 150,000 therms per year of natural gas to heat the new Recreation Center would be more than the gas saved by the increase in efficiency of heating of the existing buildings.

Generation of electricity in addition to production of steam would require about 850,000 therms/year. The project would result in gas consumption about two and a half times present use. In the absence of detailed analyses of emissions from all the existing boilers and final design and material selection for the Recreation Center, it is not possible to determine the before and after project emissions in detail. The BAAQMD would consider before and after project emissions during its permit review process.

The emissions of a 16-cylinder engine running on natural gas at steady load are not similar to those of 4- to 8-cylinder automobile engines operating at rapidly changing loads on petroleum-based fuels, which contain larger

molecules than natural gas together with a variety of additives not present in natural gas, and cannot be compared on the basis of cubic inches of engine. Automobile fuels do not burn as cleanly as natural gas and, in particular, they produce particulates. As indicated on DEIR page 61, the co-generation facility would not produce particulates.

AIR QUALITY DATA INFORMATION SOURCE

Comments:

"Is the information in the EIR on...air pollution...based upon manufacturer's specifications and mathematical models, or are they based on actual experience with operating power plants of similar size and type?" (Joel Ventresca, Haight-Ashbury Neighborhood Council, public hearing comments)

"FMC Associates, a subcontractor who will design and install the power plant and who will directly profit from the project, through a telephone call, supplied the estimates of daily air pollution emissions for the plant which are identified on page 61." (Joel Ventresca, Haight-Ashbury Neighborhood Council, written comments of April 25, 1985)

Response:

The air emission estimates in the DEIR are based on equipment vendors' test reports.[1]

NOTE:

1. Robert E. Fishman, FMC Associates, telephone conversation, May 10, 1985.

AIR QUALITY: TRIGGER LEVELS

Comments:

"1. Table 3, page 61 shows the 'Trigger Level' for PSD regulations as 100 tons/year of nitrogen oxides. The District adopted a new rule (Regulation 2-2-305) in March 1984 lowering the limit to 40 tons/year of nitrogen oxides. If worst case project emissions exceed the limit, the District requires either offsets or modeling and analyses in conformance with Regulations 2-2-415 and 2-2-418. How will the cogeneration project sponsors comply with this rule?" (Milton Feldstein, BAAQMD)

Response:

EIR page 61 has been corrected to show that the 'Trigger Level' for PSD regulations is 40 tons/year of nitrogen oxides. Worst case project emissions[1] are expected to exceed this limit. Nitrogen oxide offset credits are expected for discontinuation of use of the current boilers at Gleeson Library and for generation of electricity. If these are not adequate, sponsors would perform modeling and analysis in conformance with Regulations 2-2-415 and 2-2-418 of the Bay Area Air Quality Maintenance District (BAAQMD).

NOTE:

1. Robert E. Fishman, FMC Associates, cogeneration plant designers, telephone conversation, May 16, 1985.

AIR QUALITY: SMOKESTACK

Comments:

"2. The existing boiler plant exhaust stack will be used for the Cogeneration System. Does the existing stack conform to 'good engineering practice' as defined in District Manual of Procedures, Volume II, Part 10? If not, the District may require modeling to determine the effects of building wakes on concentrations at nearby receptors." (Milton Feldstein, BAAQMD)

Response:

Conformance of the existing stack to "good engineering practice" would be determined at the time of filing with BAAQMD for "Authority to Construct."

AIR QUALITY: HYDROCARBON PRODUCTION

Comments:

"3. The estimate of daily project hydrocarbon emissions seems high. Does it include methane as well as reactive hydrocarbons? Only reactive hydrocarbons are of concern." (Milton Feldstein, BAAQMD)

"Page 61. Hydrocarbon emissions close to trigger levels. Please discuss. Project emissions based on 24 hrs/day emissions? Should be." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

The hydrocarbon emission figure in the EIR (page 61) does not include methane. The non-methane hydrocarbons appear high because the system was designed to minimize nitrogen oxide emissions from the lean burning engine.[1]

Since nitrogen oxide emissions were expected to be in excess of trigger levels while hydrocarbons were not, this was judged to be a reasonable trade-off by the design engineer.

The stated hydrocarbon emission level is a worst case which is not expected to be reached. The shift from a Cooper to a Waukesha engine will result in decreased hydrocarbon emissions.

NOTES:

1. The worst case air pollution analysis has been made on the basis of 24-hour operation at capacity which is unlikely to occur since classrooms do not have to be heated at night when they are not occupied.

AIR QUALITY: ACID FOG

Comment:

"It is unclear whether these air pollution figures are based upon a 16-hour-a-day or 24-hour-a-day operation of the plant. However, the figures identified reveal 102,000 pounds of nitrogen oxides, 102,000 pounds of carbon monoxide and 51,000 pounds of hydrocarbons will be put into the air from this project ... per year. In other words, 114 tons of air pollution will result from this project per year. In regards to the first air pollutant mentioned, nitrogen oxides, this contributes to the acid content of the fog in San Francisco which is increasing and documented in a recent study by the University of California Lawrence Berkeley National Laboratory." (Joel Ventresca, Haight-Ashbury Neighborhood Council, written comments of April 25, 1985)

Response:

The worst case of air pollution analysis has been made on the basis of 24-hour operation at capacity which is unlikely to occur since classrooms do not have to be heated at night when they are not occupied.

The most important pollutant resulting from the combustion of natural gas is nitrogen oxides, the main component of which is nitrogen dioxide, which is largely responsible for the brownish appearance of smog. The burning of natural gas normally does not result in formation of visible amounts of nitrogen dioxide. Most of the nitrogen dioxide in the Bay Area comes from automobile exhaust.

AIR QUALITY: HEALTH EFFECTS

Comments:

"Page 29. Describe known health affects (sic) of all emittants and those individuals most sensitive or at risk..." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

Nitrogen dioxide can affect the body by contact with the eyes and skin or by inhalation. Exposure may cause breathing difficulties, cough, nausea, headache and, at high concentrations, lung damage. Sensitive persons may react at a concentration of 47 milligrams per cubic meter of air (mg/m^3).[1]

The highest recently reported nitrogen oxides level in the Bay Area was a one-hour average of 0.3 mg/m^3 at San Jose.[2] The State outdoor standard for nitrogen oxides is a one-hour average of 0.47 mg/m^3 and the Federal standard is an annual average of 0.1 mg/m^3. Violations of these standards have

not been reported in San Francisco. Incinerators, which produce more nitrogen oxides than the burning of natural gas does, emit an average of 200 mg/m^3 which can be expected to produce a maximum one-hour ground level concentration of about 0.002 mg/m^3.[3] It has been estimated that a 115 mW natural gas-fired cogeneration facility, 64 times bigger than the proposed USF plant, would emit a maximum of 0.1 mg/m^3 nitrogen oxides/hour, or 1.1 tons/day compared to the 0.14 tons/day predicted for the USF plant.[4] This comparison suggests that the estimate for the USF plant is conservative. It is unlikely that the present boiler produces enough nitrogen dioxide to produce detectable symptoms in exposed persons, even under inversion conditions which limit the dispersion of pollutants, and it is less likely that the new boiler would do so. As indicated on DEIR page 62, the proposed project would have to comply with Bay Area Air Quality Management District requirements for control of production of nitrogen oxides in order to obtain a permit to operate. These standards are designed to provide a safety margin for protection of human health based on different susceptibilities within the population.

A general discussion of the health effects of air pollutants was not included in the EIR because air pollutant levels in San Francisco, particularly in non-downtown areas, are not high enough to produce detectable health effects and even cumulative emissions due to development under the Downtown Plan would tend to result in lower hydrocarbon, nitrogen oxide and carbon monoxide emissions in the year 2000 than in 1984,[5] particulate emissions largely result from vehicle emissions which would not be significantly affected by this project, and because the only source of sulfur in natural gas is the trace of thiophene added as a safety measure so that the gas can be smelled.

NOTES:

1. National Institute of Occupational Safety and Health/Occupational Safety and Health Administration, Occupational Health Guidelines for Chemical Hazards, January 1981.

2. Highest value betweeen 1/1/82 and 12/31/84, as cited in California Energy Commission, Final Staff Assessment for Gilroy Energy Company, Inc., Gilroy Foods Cogeneration Project, Santa Clara County, 84-AFC-4, April 1985, p. 129.

3. FEIR, Compton Energy Systems Inc. Waste-to-Energy Facility, SCH #83092103, 1984, p. III-30.

4. Reference 2, page 126.

5. FEIR for the Downtown Plan, 1984, EE 81.3, SCH 8403200, p. 1.I.1.

AIR QUALITY: DISPERSION

Comment:

"Page 35. This discussion is not specific to surrounding community and should be replaced with description of current air quality impacts of USF, et al. activities. Nothing currently in the neighborhood producing pollutants. Co-generation plant will degrade air quality, regardless of significance..." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

"...page 28. That shows the steam distribution system. It's a pretty good drawing... It helps a person get some idea [of] what they're doing...when I bought my house I had no idea I was next door to a heating plant. But that heating plant as it is now provides heat for seven buildings...It's Xavier Hall, Gleeson, Harney, Campion, St. Ignatius, Phelan and the Memorial Gym. Now, other buildings that are shown there have their own individual plants. For example, Kendrick Hall, Cowell...Cowell has its own

plant. Gillson has its own plant. Healey has its own plant. University Center has its own plant. And...Loyola Gym has its own plant. And the Health and Recreation Center, while it doesn't exist now, there is another building there now, Loyola Hall has its own plant.

"The point I'm trying to make is, nobody has mentioned this, and I went to these meetings at the university...nobody except me, and now Mr. Coan, is aware that they're talking about doubling the heating load on that plant. Nobody mentioned that. What they're going to do is close up the plants in the other buildings...Gillson won't have its own plant...Loyola Gym won't, Health and Recreation Center won't. All of those heating loads are going to be added to the plant that is in the basement of Gleeson, 200 feet from my bedroom window.

"I just mention that I did read the prospectus and it says if there's a strong wind blowing all the time there is no problem. Well, if there is a strong wind, that's nice. But many times there isn't a strong wind blowing all the time. Daytime in the summer, the wind at best is intermittent. Many times, it's calm. At some times during the winter, there's an inversion. During those times, I experience a real, real smuck or smog right in front of my house. Sometimes I wake up in the morning and it gags me. (John Smalley)

"I live just 50 feet or less from the Smalleys. I have never experienced any of the suffocating fumes which Mr. Smalley refers to. It may be that his nose is more sensitive than mine....And I don't want to question his veracity or his sensitivity. I can only speak from my own experience." (Thor Firing, Temescal Terrace Association)

Response:

Under inversion conditions in the winter, air pollutants are trapped near the surface and do not disperse as they do under other conditions. Even under these conditions, it is not expected that the difference in having one emission point rather than several on the USF campus would result in detectable differences in air quality at an individual point near ground level on or near the campus because some air dispersion occurs even under inversion conditions. The emissions would occur above the top of Gleeson Library and the emissions would be relatively dilute because natural gas is a clean burning fuel compared to oil, gasoline, coal or other common fuels. The statement on DEIR page 62-63 "and would be subject to the strong prevailing winds in the site area which would reduce concentrations of emissions in the site vicinity" has been deleted.

Footnote 6 has been added to Table 3, Daily Air Pollutant Emissions, DEIR page 61, stating that these estimates are for "Worst case, assuming 24-hour operation at full load; 24-hour operation is unlikely."

Air monitoring data are available for two sites in San Francisco, neither of them close to USF. Since there is no basis to assume that present air conditions at or near USF are significantly worse than the generally clean San Francisco air, because no unusual air pollution generators are present on or near campus, or that the project would produce significant air pollution, on-site air monitoring and modeling of dispersion of air pollutants have not been performed. Modeling could be requested by the BAAQMD if they felt there was a need for it. As stated on DEIR page 62, "The project... would not be expected to affect persons working or residing near the Cogeneration System, or patients of St. Mary's Hospital and Medical Center."

Hospital patients with respiratory system conditions would be expected to be most sensitive to air pollutants.

AIR QUALITY: COOLING TOWER PLUME

Comment:

"Page 63. How many days/year will plume be visible?" (Dale Carlson, Stanyan/Fulton Nieghborhood Association, written comments of May 10, 1985)

Response:

As indicated on DEIR page 63, the water vapor plume "might be visible on cool, damp days." In the absence of detailed information on temperature, relative humidity and wind speed at the level of the top of the stack on Gleeson Hall, the number of days when the plume would be visible cannot be estimated.

NOISE MEASUREMENTS

Comment:

"Sound was measured at 4 sites not near the location of the proposed power plant which will generate the noise, according to the chart on Page 38. One site, used to measure existing sound, was 1,200 feet away; another was 1,125 feet away; another was 1,050 feet away from the power plant. The closest was 225 feet away; it measured sound only for 15 minutes at 11 AM and 4 PM on a Wednesday and a Thursday." (Joel Ventresca, Haight-Ashbury Neighborhood Council, written comments of April 25, 1985)

Response:

Additional noise measurements were made inside and outside of the boiler room and on both sides of Golden Gate Avenue on May 23, 1985, by Richard

Illingworth, P.E., Charles M. Salter Associates, Inc., consultants in acoustics, to assist in these responses to comments. Portions of the EIR noise discussions have been revised for clarity and to reflect the new measurements.[1]

NOTE:

1. Report dated May 29, 1985, available for public review in the Office of Environmental Review case file.

NOISE: COMPARATIVE

Comments:

"...the noise, will make our residences a less desirable place for us to live, and will certainly lower the value of our homes." (Georjean Hewitt)

"My wife Tina and I live just directly across Golden Gate Avenue. Our bedroom is about 150 feet from the site where they propose to create a cogeneration plant in the basement of the library....this Environmental Impact Report makes it impossible for a person of ordinary and average intelligence to determine what the noise levels in fact will be at the point where it is most important, where the people live, where they have to sleep. I have read it. There are some conclusionary statements in there, but you cannot determine what the noise level will be.

"I cannot believe from the figures that are set forth here that there will not be a substantial increase in the level of sound in my bedroom at midnight...

"Occasionally when they're doing some work, they open the door out onto the street, and it is totally and absolutely amazing. I can hear the cuss

words -- and I don't mind cuss words because I use them myself. But I can hear them so clearly, 150 feet away at midnight in my bedroom. They drop a hammer, I jump up clear out of bed and thought somebody broke a window. The sound carries very easy and very strongly. And I do not think that it is appropriate that a person who lives in these homes be subjected to the kind of noise that I think is apparent that is going to emanate from this plant.

"At least from the figures and the information that is furnished to us, a reasonable determination cannot now be made on a factor that I think is important and must be made prior to approval of this Environmental Impact Report and the project." (George Coan)

"I live directly across the street from the library. My address is 60 Temescal. It stretches along Golden Gate to the back of his house [Coan's] which stretches along until it gets to Chabot...I wanted to just say something about the noise. Mr. Coan mentioned that. Of course, I have experienced the same thing. I have lived opposite that for 20 years." (John Smalley)

"...insufficient ... discussion of the...noise..." (Calvin Welch, Haight-Ashbury Neighborhood Council)

"What will be the noise level at night? There is no data presented on nighttime background noise near the power plant only daytime measures which are not close to the proposed project location. There is no 24 hour measure of sound at the power site.

"The power plant will be 140 feet from the nearest residence across the street which is a mixed single family, multifamily residential neighborhood.

"Will this project increase day or night noise from the site and if so, how much?

"The EIR states that the average indoor noise level for nearby residences will be equivalent to the noise level in an unoccupied auditorium with an air conditioning system running. This is not reassuring to me.

"How much noise is generated at the site now? Obviously, noise at the site will increase." (Joel Ventresca, Haight-Ashbury Neighborhood Council, written comments of April 25, 1985)

"...comments are going to focus on the need for this EIR to provide comparative data, what the situation is now with the existing boiler plant and the noise that it generates...versus what's going to happen when the cogeneration plant, if it's installed, is installed.

"If there's a noise problem...and it's hard to tell from this EIR whether or not those things are in fact going to be problems -- the university is going to suffer along with us. Those things need to be discussed." (Dale Carlson, Stanyan/Fulton Neighborhood Association, public hearing comments)

"...information is not presented in a fashion readily comprehendable to laypeople. This is particularly troublesome for data describing...noise...impacts. Wherever possible, please compare existing conditions (e.g. noise levels) with those anticipated after project completion. More tables and the use of standard units will be helpful...

"Page 7. In simple terms, will one hear noise from the heat radiator et. al. across the street? In nearby homes?

"Page 65. Provide indoor ambient noise levels.

"[Page 66]. Entire discussion hard to understand. Table of comparative data needed. Current noise level inside homes vs. noise level inside with project, etc.

"Will streets be torn up for piping between plant, Rec Center? (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

"I think what everybody has said about the noise shows that the -- I think probably in here it does say what the real picture is going to be, but it's very difficult to know what that is. I think Mr. Carlson's suggestion about comparative, what it is now and what it will be, because, in reading it, I can't exactly tell whether someone's living room at night indoors will be affected by this or not. It does say that people won't be kept awake by it, but I am not all that sure it should be even heard...the information we are looking for is not just how it relates to the city-wide ordinance or any other ordinance, but is it heard when somebody is just walking around the neighborhood at night? A lot of people walk up there. People are on the campus walking. Who's going to hear it and how much will they hear?....

"...we could conceivably face the question about cogeneration from every other institution in the city. And do we then want our neighborhoods to be places where instead of hearing peace and quiet or just hearing a fire engine or just hearing street noise, we are also going to hear a plant generating noise...

"...I think the EIR has to tell what it will be and then if there is any way that the university can go further in noise control so that there will be

no sound...in existing residences, as well outside where they're walking and relaxing.

"Does their power plant that exists now make any noise? I guess that's what we are talking about. And if it does, when does it? Because maybe the current thing is enough better so we shouldn't be doing it. And the only way we are going to know is if we know exactly what their current plant does and what its condition is and then what this one would be, very clearly." (Commissioner Bierman)

Response:

The last sentence of the first complete paragraph on EIR p. 65 has been modified to read: "The daytime ambient noise level (L_{90}) in the nearest residential area is 44-47 dBA and the minimum ambient noise level drops to 38 to 46 dBA during the night, depending on wind and traffic conditions (for existing background noise levels, see Table 2, p. 39). The minimum noise level occurs about 3-4 AM and is at the higher end of the nighttime range when there is wind, as typically occurs in the summer."

The following new paragraph has been added after the first complete paragraph on EIR p. 66:

"When the sound level inside the boiler room was 73 dBA, the sound level outside the door to the boiler room was 65 dBA[2a], the level directly in front of the louvers in the boiler room wall facing the homes opposite the boiler on Golden Gate Avenue was 50 dBA, the level outside of the homes across the street was 44 dBA, and the level inside Gleeson Library directly above the boilers was 40 dBA. For comparative purposes, the sound level of cars passing the homes across the street was 60 to 70 dBA."

Footnote 2a has been added to EIR p. 72:

"Richard Illingworth, telephone conversation of 31 May 1985."

Opening the doors to the boiler room between 9:30 and 11:00 PM had no effect on the noise levels measured across the street on Golden Gate Avenue. The louvers already transmit so much noise towards the homes across the street that no change can be detected when the doors are opened. During the day the sound of the existing boilers is barely audible on the near side of Golden Gate and inaudible across the street. In the evening, up to 11 PM the sound is barely detectable by instrument across the street on Golden Gate. As stated on EIR page 66, the new engine would produce the same sound level as the present boilers; so no change in ambient noise levels would occur due to the engine.

From the paragraph starting on the bottom of EIR p. 66 to the end of the section on p. 67, the text has been revised to read:

"Noise generated by exhaust of the diesel engine generator through the existing stack on top of Gleeson Library could exceed ambient levels by up to 7 dBA at 3:00 AM on calm nights if the Cogeneration System were running at maximum level; however, the unit would not be run at maximum level at 3 AM since most buildings would neither be occupied nor heated.

"Present daytime indoor background sound levels at the homes across from Gleeson Library are about 30 to 35 dBA with windows closed, 35 to 40 dBA with windows open, and 45 to 55 dBA with windows open facing Golden Gate Avenue, when cars drive by. At 30 dBA, indoors, with the windows shut, the indoor sound level would be dominated by the sounds of refrigerators, electric clocks, etc.

"Noise would be generated by the engine generator, the heating boilers, the exhaust stack and the radiator. The maximum cumulative, unmitigated night noise level outside the buildings across the street would be 63 dBA. Use of a two-speed fan operated at the lower, quieter speed at night, a noise insulating enclosure around the radiator unit, and other design noise mitigation measures would reduce the noise level outside the nearest homes to 35 dBA and the level inside to 30 dBA.[3] 30 dBA is within the range of the existing ambient noise level at night, so the proposed project would not change current conditions in the area. A sound level of 30 dBA is the typical noise level in an unoccupied auditorium with just the air-conditioning system running. A summary of current noise levels at residences near the Gleeson Library boiler plant and projected levels with the cogeneration plant is given in Table 3A, p. 41."

The nearest general campus walkway to the boiler plant is midway between Gleeson Library and Harney Hall where the noise level is about 60 dBA and noise from the boiler cannot be distinguished from noise from mechanical equipment in Harney Hall.[1] People walking on campus or on Parker Street would not notice any difference from current conditions.

There are other possible noise-reducing mitigation measures which have not been incorporated in the project, such as replacement of the louvers in the front of the boiler room portion of Gleeson Library with sound attenuating louvers. The following mitigation measure has been added to EIR p. 91:

"Measure that Could be Implemented by Public Agency"

The Planning Commission, in consultation with an acoustical engineer could establish as a condition of the conditional use permit that a sound level

Table 3A. Noise Levels at Nearest Homes With and Without the Cogeneration Plant (dBA)

Location	Present Noise Level		Noise Level With Cogeneration Plant[1]	
	Daytime With Boiler	Night[2] Without Boiler	Day	Night
Outside, car driving by	60-70		60-70	
Outside	44-47	46[3]	47	46
Inside, windows open, car driving by	50-60	45-55	50-60	45-55
Inside, windows open	35-40	30-35	40	30-35
Inside, windows closed	30-35	25-30	35	25-30

1. Assumes use of a two speed fan running at the slower, quieter speed at night.

2. Minimum ambient noise levels found at 3-5 AM on 24-hour recordings.

3. On quieter streets, further from USF, on quiet nights, the minimum noise level may be as low as 38 dBA. No cogeneration system noise could be heard at this distance.

Source: Charles M. Salter Associates, Robert E. Fishman, P.E., and Bendix Environmental Research, Inc.

survey be performed under specific conditions after operation of the Cogeneration System begins and require that if the sound level proves to be above a specified level, additional noise mitigation measures would have to be installed."

Temporary construction noise (about one week) would occur during normal working hours when connections between the Cogeneration System and the Recreation Center were installed under Parker Street. The 140 ft. distance from the cogeneration facility to the nearest homes was stated in DEIR, page 70.

NOTE:

1. Richard Illingworth, telephone conversation of May 31, 1985.

NOISE QUALITY

Comments:

"I think that the kind of noise that we are talking about is the kind of noise that those of us who have been on ships are familiar with from the air conditioning system. In office buildings that have poor systems of air conditioning noise level, we are all familiar with that.

"And it's the kind of noise that will get to you after a while because a power plant creates that whirring sound." (George Coan)

Response:

The quality of the noise produced by the cogeneration system would not be expected to be perceptably different from the existing ambient noise. As a result of further design development and efforts to further mitigate potential noise impacts, a decision has been made to use a Waukesha engine which is quieter and produces a higher frequency noise which would be easier to shield than the noise from the engine earlier considered. The new heating boilers would also be quieter than the existing boilers under Gleeson Library.

NOISE REFLECTION

Comment:

"One thing I think that tends to make the noise particularly dramatic is the fact that there's a 60-foot building or so just there. In other words, any noise in front of the plant has to go somewhere. It tends to bounce off the building and bounce to the houses. We tend to be the recipients of any noise from that area. I guess it acts like a sounding board." (John Smalley)

Response:

The noise coming out of the louvers is already directed away from the library building so it is not reflected by the building.

NOISE: DATA SOURCE AND EQUIPMENT SELECTION

Comment:

"Is the information in the EIR on noise...and vibration based upon manufacturer's specifications and mathematical models, or are they based on actual experience with operating power plants of similar size and type?" (Joel Ventresca, Haight-Ashbury Neighborhood Council, public hearing comments)

"...the project sponsor has not decided which engine to use yet, so how can they determine the level of noise that will be generated at the site?

"Twenty pages in the report explain, in great detail, how the noise problem will be insignificant while the engine which will be the source of the noise hasn't even been selected yet..." (Joel Ventresca, Haight-Ashbury Neighborhood Council, written comments of April 25, 1985)

Response:

Footnotes 2a and 2b have been added to EIR p. 72 to explain the basis for the statements in the second complete paragraph on EIR p. 66 that the present sound level in the boiler room is 75 dBA and would not change with the project:

"2a. The sound level in the boiler room, with two out of four boilers operating, is 73 dBA. With all four boilers operating, the level would be expected to be 2-3 dBA higher, or 75-76 dBA. This difference would not be audible.

"2b. There can be a sizeable variation in the noise produced by different engines of the same size. The noise and vibration estimates in the DEIR are worst case estimates based on information developed by Dr. Laymon Miller of Bolt Beranik and Newman, Inc., Cambridge, Massachusetts. Dr. Miller measured equipment under a variety of conditions and developed a technique that predicts levels as high or higher than the sound level generated by 95% of the pieces of equipment that he measured. Therefore, 95% of engines of appropriate size for this project would be expected to generate sound levels lower than those stated in this EIR. The relevant portion of this report is available for public review in the Office of Environmental Review case file."

Neither the acoustical consultant nor the design engineer have any actual measurements on the noise produced by cogeneration systems similar to the proposed system. Telephone conversations with several operators of cogeneration systems reveals that they have made no measurements because they have not encountered any noise problems. The California Institute of Technology (CalTech), in Pasadena, California, is a postsecondary educational institution in a residential neighborhood. CalTech has an operating 1 mW cogeneration facility (the USF facility would be 1.5 mW). The west wall of the facility is about 15 feet from a residential street with a private school immediately across the street. The administration building of this school is within about 100 feet of the cogeneration plant. No noise measurements have been made at the facility because no one has noticed any noise problem.

CalTech specified that a maximum of 85 dBA was to be produced by the equipment at a distance of one meter from the equipment.[1] San Francisco State specified that the engine generator unit not exceed 100 dBA five feet from the unit.[2]

NOTES:

1. Telephone conversation with George Fielding, California Institute of Technology, Pasadena, California, May 14, 1985.

2. Complete specifications available for public review in the Office of Environmental Review case file.

NIGHT OPERATION NOISE

Comment:

"The university assures us that they will turn down the radiator at night on the roof of the library because it might cause sleep disturbance for nearby residents, but elsewhere in the report we learn the plant might operate from 16 to 24 hours a day (page 90)." (Joel Vantresca, Haight-Ashbury Neighborhood Council, written comments of April 25, 1985)

Response:

It is not expected that the Cogeneration System would ever be operated at maximum level at night because unoccupied classroom and administrative buildings would not be heated at this time.

NOISE: SAN FRANCISCO STATE COGENERATION FACILITY

Comments:

"According to Robert Carpenter, San Francisco State's energy resource management engineer, vibrations from utility lines under the street have

been a problem, as well as noise vibrations from their generator which is louder than a jet engine. For example, he explained to me that simply opening the door to the plant sent noise out from the plant and it could be heard a mile away. After the system was on line the university had to go back in and place additional equipment in the plant to reduce noise.

"This plant is 1/2 the size of the one proposed at USF." (Joel Ventresca, Haight-Ashbury Neighborhood Council, written comments of April 25, 1985)

Response:

A letter from Robert L. Carpenter, Energy Resource Management Engineer, San Francisco State University, is reproduced in its entirety on the next page of these responses.

NOISE UNITS AND FACTORS

Comment:

"Page 40. Why is daytime background noise described as a range of decibels that is exceeded 90% of the time?

"Page 66. Source for extrapolation of indoor to outdoor noise levels." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

"What is the percentage and net increase in the noise level if this project is built?..." (Joel Ventresca, Haight-Ashbury Neighborhood Council, written comments of April 25, 1985.)

San Francisco State University

1600 HOLLOWAY AVENUE • SAN FRANCISCO, CALIFORNIA 94132

DEPARTMENT OF FACILITIES PLANNING AND OPERATIONS

RECEIVED
MAY 24 1985
BENDIX ENVIRONMENTAL RESEARC

May 21, 1985

Mr. Gilbert Bendix
Bendix Environmental Research, Inc.
1390 Market Street, Suite 902
San Francisco, CA 94102

Subject: Cogeneration Plant

Dear Mr. Bendix:

It is unfortunate that I was misquoted by the Haight-Ashbury Neighborhood Council to the San Francisco Planning Commission on April 25, 1985. Facts regarding the San Francisco State University cogeneration plant are as follows:

1. The cogeneration system is a reciprocating engine with 725 kw generator located near Parkmerced and Ocean neighborhood areas. Operation is 24-hours per day.

2. Vibration from the system was a problem within the building where it is located (sub-basement of a 15-story dormitory). However, this problem was corrected once isolation material was installed between the engine-generator and the concrete pad. "Vibration from utility lines under the streets" has never been a problem.

3. Engine noise was a problem within the building. Once the engine-generator room was better insulated, this problem was remedied. Although true that noise can carry a considerable distance while the engine is operating if the loading bay doors are open, this problem is alleviated by keeping the doors shut.

Please feel free to distribute this letter as you deem necessary. Thank you for bringing this matter to my attention.

Sincerely,

Robert L. Carpenter
Energy Resource Management Engineer

RLC:bc

Response:

It is standard acoustical practice and routine San Francisco EIR practice to describe background noise levels in terms of the noise level exceeded 90% of the time, L_{90}, because this represents the noise level when no noise producing events are taking place.

The extrapolation from outdoor noise levels to indoor noise levels with windows open and closed is made with standard engineering factors based on measurements in buildings of a variety of types of construction.[1]

Noise levels cannot be meaningfully discussed in terms of percentages because the nature of human perception of sound energy is such that it has to be represented by a logarithmic scale. Values expressed in logarithmic units cannot be compared on the basis of percentage changes.

NOTE:

1. Richard R. Illingsworth, P.E., Noise Section, USF Recreaction Center/ Cogeneration Facility EIR, June 18, 1984, and Preliminary Environmental Noise Assessment, USF Cogeneration facility, Gleeson Library Site, October 18, 1984, available for public review in the case file at the Department of City Planning, 450 McAllister Street.

NOISE TIMING CONTROL

Comment:

"Could noise of jackhammers be restricted to later in the morning?" (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

The Director of Public Works has the power to restrict the time of operation of noisy equipment. Time restrictions could also be made a condition of approval of the conditional use permit. Suggestions for such conditions can be made to the Planning Commission at the time of consideration of the conditional use and to the Director of Public Works prior to issuance of the building permit.

NOISE AND INSULATION

Comment:

"Can insulation of homes reduce noise impact? Any resources available to cover cost? (City, PG&E, project sponsor?)" (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

Thermal insulation to mitigate heat transfer through the outside of buildings also acts as noise insulation. PG&E has a low cost thermal insulation program. The project sponsor would not pay for acoustic insulation because the construction noise impacts would be temporary and the proposed project would not cause detectable noise impacts.

CUMULATIVE NOISE IMPACTS ON MCALLISTER STREET HOMES

Comment:

"McAllister Street homes could be affected if Rec Center, St. Mary's office tower are both under construction [at the same time]." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

As stated on DEIR p. 71, "There is the potential for either slightly higher noise levels during construction or an increased amount of time persons might be exposed to construction noise for residents located between" St. Mary's and USF if construction took place at the same time.

PARKING: GENERAL

Comments:

"We note that the proposed Health and Recreation Center will provide 172 parking spaces; because parking, based on what was written in the report, would be free for users of the complex, it is, in fact, subsidizing parking for automobile users. If USF is subsidizing parking for automobile users by their not charging the full market value for parking spaces, USF should also subsidize transit passes for both employees and students as a transportation mitigation measure." (K.L. Wong, MUNI)

"I have resided at 103 Beaumont since the 1940's and feel their plan, if effected, will be very detrimental to our residential neighborhood.

"Already our parking spaces are practically nil. They say they will encourage participants at their facility to use public transportation. However, our street parking is already taken up with their students' cars, so this encouragement is meaningless." (Georjean Hewitt)

"Another point I wish to make in regard to the evening parking for this facility, it must be free and made known to the users of this facility to keep their cars off the neighborhood streets surrounding the facility. As it is now people avoid parking in the lot because of nominal cost. They

park in our neighborhood which is particularly hard for the residences along McAllister who have no garages as a result of having had an easement taken away to the rear of their properties at a time when parking was not such a nightmare as it is now in this city today." (Mark Terjesen)

"The parking in the neighborhood is a staggering problem. That is up to restricted neighborhood parking to solve. It's beyond the university's resources to solve it, I think. So, the rec center as revised seems like a workable design" (Ted Thompson)

"Our major question, and I disagree with Ted Thompson on this one point, I don't think just controlled parking is a total answer or total solution. But I do agree with Ted, I don't think it's a totally solvable problem either. But the university has gone on record at our public meetings with them as saying they would like some guidance from the City traffic engineers, that they are not happy either with their parking plan for the lot that will run along Parker and Turk. And we would like some type of guarantee from your group, if possible, that you will give advice to the university and that we will have a further chance to come back and view the parking problem. That is the main criteria of our finding fault, if at all, with the Recreation Center at this point." (Bob Lee, Francisco Heights Civic Association)

"At this time daytime parking for USF is sorely inadequate. Your report does not take this under consideration. Cars are illegally parked in crosswalks, bus zones and across street corners creating traffic hazards. Students may come for only one or two classes a day and will not use a Lone Mountain parking lot since they must negotiate a steep hill and one residential block to get to the main campus.

"Planned restricted neighborhood parking via preferential permits increases costs to us residents and to the city due to enforcement personnel. Why should both the neighbors and the city be penalized further for problems created by tax free USF and St. Mary's?

"I am against further development until present problems are resolved.

"The EI report should include existing deficiencies as a determination for approval. Environmental Impact may be a recent requirement but it should not ignore pre-existing conditions which can be resolved.

"The funding capabilities of USF are only so great. If the health center is built first the chances of getting the parking solved are decreased severely if not lost completely." (H. Fred Burger)

"Page 5. No information offered on actual parking demand of Rec Center. If 1850 of the 4000 weekday trips are by auto, 172 spaces hardly seems sufficient.

"Page 7. How many added spaces on main campus by restripping?...

"How many new spaces on main campus? On Lone Mountain?" (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

Parking impacts were discussed on DEIR pages 77-78, where it was stated that "Currently, vehicle occupancy at the three lots drops to less than 30% after 6 PM on weekdays. Assuming this trend continues, there would be adequate space available to accommodate the projected increase in weekday PM peak demand. During daytime hours, no new parking demand would be generated by

the proposed project, assuming that alumni and neighborhood use is restricted as expected."

Single passenger vehicles pay $36.80 per term ($38.40 for campus residents) for daytime parking and $14.95 per term for nighttime parking. The fees go up each year. The University does not wish to charge fees at or closer to "full market value" because this would displace parking from the campus into the surrounding neighborhood. Bicycle parking is free. With the present parking fee schedule, some drivers who have purchased stickers still park on the street in the daytime rather than use more remote-parking and walk several blocks. If a residential preferential parking system were to be established according to Article 15 of the Traffic Code, it would be expected to shift these vehicles to remote on-campus parking lots such as those east and west of Memorial Gymnasium, which have the capacity to absorb additional vehicles. Campus parking for Recreation Center users would not be free.

USF has a program to encourage on-campus parking and car-pooling by provision of free campus parking to qualifying pool vehicles. The Tranportation Broker informs students about public transit services, sells MUNI Fast Passes, and provides a computer carpool matching service.

Commentors' statements about the lack of available street parking are confirmed by the "Greater Haight-Ashbury Cumulative Assessment Report": The USF/St. Mary's area parking survey, which included the entire Greater Haight Ashbury area north of Page Street between Stanyan Street and Ashbury Street, revealed a 91-100 percent occupancy of on-street parking in the area during daytime hours...

In evaluating the cumulative impact of proposed projects in the Haight-Ashbury area, this report states: "In both [USF and UCSF] areas, the proposed projects would provide ample off-street parking to satisfy new demands generated. However, new on-street parkers may be nonetheless generrated by these developments because on-street parking is convenient to get into and out of and, in both areas, it is free...A residential preferential parking district or other form of restriction in the area near USF and St. Mary's could be used to further discourage additional on-street parking by visitors." A residential preferential parking system already exists near UCSF. The comment about the costs of a preferential parking system is is acknowledged.

Development of the Recreation Center would result in a permanent loss of seven spaces on the project block. As indicated on DEIR page 77, other lots at USF would be reengineered to create nine additional spaces to compensate for this loss and as indicated in footnote 10, page 80, the relevant study is in Department of City Planning case files available for public review. Since publication of the DEIR, the parking plan has been revised to show 186 spaces, which is two more than the 184 existing at the beginning of the planning process for this project. Restriping for nine of these spaces was done in March 1985. The following changes have been made in the DEIR to reflect new parking information.

The Summary has been updated, DEIR p. 5, beginning of the first complete paragraph to read: "Parking on the site (currently 184 spaces in three lots) would be consolidated into one 177-space lot for a net deficit of seven spaces on-site." and EIR pp. 7-8, "On-campus parking lots would be restriped and reengineered to add parking to offset the seven space reduction in on-site parking."

Figure 3, DEIR p. 15, has been corrected to show 177 spaces.

The beginning of the first complete paragraph on DEIR p. 20 has been updated to read: "Extending along Turk St., from the east side of the Multi-purpose Court Building to Parker Ave., would be a 177-space parking lot consolidating the three parking lots that currently exist on the site."

The beginning of the first paragraph of the DEIR Parking Impacts section on p. 77 has been updated to read: "The proposed Recreation Center would provide a single 177-space on-site surface parking lot to replace the three existing on-site lots, which contain 184 spaces. The proposed lot would result in a seven space reduction in on-site parking. In anticipation of this deficit, other main campus lots at USF have already been restriped to create nine new spaces.[10] These nine spaces would permanently provide two more spaces than would be lost due to the project."

The following addition has been made to footnote 10, p. 80:
"Letter from Richard Luckett, Pflueger Architects, to John Hussey, Office of Environmental Review, March 21, 1985."

The number of parking spaces in the first complete paragraph on EIR page 81 has been changed to 177.

The parking lot restriping mitigation measure on DEIR page 91 has been revised as follows: "USF would re-engineer and restripe parking lots to provide 177 spaces on Lone Mountain." Nine spaces on the main campus have already been created, three at Plant Services and six behind Cowell Hall. See also p. 217, last paragraph.

The comment on DEIR page 5 refers to 4000 weekday trips. As indicated on DEIR page 4, 95% of these 4000 trips would not be new trips. The 13-space parking deficit discussed on page 5 (now seven spaces, as indicated above)

refers to project changes in the parking lots. More than seven vacant spaces would be available in other campus parking lots. Information about the actual parking demand predicted for the Recreation Center was given on DEIR pages 4-5 and 77-78.

As indicated on DEIR page 77, the Recreation Center would generate a maximum new parking demand for about 34 spaces between 6 and 7 PM on weekdays when there is a 70% vacancy rate in campus parking lots. Despite the availability of campus parking, it is possible that some drivers would choose to use on-street parking. As indicated on DEIR pages 77-78, no new parking demand would be generated by the project during the daytime when street parking is most crowded, so the project would not affect the existing daytime parking situation.

The EIR is an informational document and does not establish conditions for the granting of a permit for the project. Suggestions for permit conditions may be made at the public hearing(s) at which the conditional use permit(s) will be considered.

PARKING LOT ENTRANCE LOCATION

Comments:

"We noted in Figure 3 that the existing and expanded parking lot's driveway will be located at the southwest corner of Turk Street at Parker Avenue. MUNI presently has a bus zone for the inbound (eastbound) 31-BALBOA located at the same southwest corner of Turk Street at Parker Avenue. We believe that this existing bus zone should not be moved as this location would provide better transit access to patrons of the proposed USF Health and Recreation Center. In addition, we believe that locating the driveway at

the proposed location would interfere with the overall traffic flows through the intersection of Turk Street at Parker Avenue, as well as interfering with the use of the bus zone and creating a pedestrian hazard to alighting bus passengers because of the drop curb.

"Because of these reasons, we believe that the parking lot driveway should be moved to the west side of the parking lot." (K. L. Wong, MUNI)

Response:

The wording on DEIR page 20, lines eight and nine, has been revised to read "The entrance to the consolidated parking lot would be at the existing entrance on Turk St. (see Figure 3, p. 15)." in order to clarify that the existing parking lot entrance is proposed to be continued. This entrance to the parking lot has been in existence at least since 1929 according to aerial photos of the site.[1]

There is a potential pedestrian safety hazard at the bus stop on Turk near Parker because the rear ends of buses protrude into the existing USF driveway. Examination of computerized 1980 - 1985 accident records for this area indicates no accidents associated with this driveway have been reported in this time period.[2] Moving the Turk St. entrance further from the corner to the other side of the lot would be more expensive and would result in the loss of several parking spaces because the street slopes downward with a grade of 8.91%[3] and a ramp would have to be created to get to the level of the parking lot. An entrance on Parker St. would be undesirable because vehicles driving south on Parker could block the intersection of Parker and Turk Sts. if queuing occurred at the entrance when students arrived for morning classes.

The following mitigation measure is added to EIR page 91 as the third measure in § C: "USF staff would meet with staff of MUNI and the Department of City Planning to discuss the entrance to the parking area and to develop a mutually acceptable parking lot design."

NOTES:

1. Glenn Loomis, Plant Manager, University of San Francisco, telephone conversation of May 16, 1985.

2. Records examined at the San Francisco Department of Public Works, Traffic Traffic Engineering Division, on May 14, 1985, by Gilbert G. Bendix, P.E., of Bendix Environmental Research, Inc., on behalf of the Department of City Planning.

3. Nick Elsner, Department of Public Works, Surveys and Mapping, telephone conversation of May 31, 1985.

CONSTRUCTION PARKING

Comment:

"Page 91. Where on site is construction parking? Will it displace student vehicles?" (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

During construction of the Recreation Center, construction workers would park on one of the lots near the Recreation Center site where they would displace student vehicles. The following sentence has been added to EIR page 78 at the end of the first partial paragraph: "Approximately 105 parking spaces would be unavailable during the 18 months of construction. Some temporary replacement parking would be made available on the soccer field (at least 40 spaces).[1] Vehicles displaced by construction which

could not park on the soccer field would be parked elsewhere on campus or on streets near the campus."

NOTE:

1. Glenn Loomis, Plant Manager, University of San Francisco, telephone conversation of June 12, 1985.

NEW PARKING STRUCTURE

Comments:

"They have a project of $50 million to build a recreation center, and they have not even talked about parking facilities.

"...I have never called the police to take away a car from my garage. Many times, students park in front of the car. Many times, I have left our car there, parked in front of my garage, take[n] the bus to come downtown or to a meeting. If they build that $50 million project and they have not made plans...or they never talk about making more garage available." (Tina Burgess Coan)

"Before USF spends money on new projects existing problems should (must) be solved. USF needs a parking garage for several hundred cars on its main campus. Two sites are possible: one in front of Gleeson Hall under what is now a lawn or at Ulrich Field. Undergrounding would be favorable to lessen the visual impact of the structure." (H. Fred Burger)

Response:

Construction of a parking garage on campus, or other provision of increased parking would tend to encourage auto commuters and discourage use of public

transit. To the extent that local parking problems are due to trips to St. Mary's Hospital, local residences, etc., a parking building would not solve the problem unless designed large enough to serve non-campus users. A parking building would require a conditional use permit. Such a building would not meet the Planning Code § 204.5 requirement that the parking be used only by "occupants, patrons, employees or services" of USF and, therefore, would not qualify as accessory parking. Planning Code §157 would require a demonstration that no detrimental traffic impacts could be produced. Application of various other provisions of the Planning Code would be considered by the Zoning Administrator and the Planning Commission.

CHANGE IN NUMBER OF ON-STREET PARKING SPACES

Comment:

"What is the gain or loss of on-street parking associated with these projects?" (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

No existing street parking spaces would be lost due to the proposed project.

TRANSPORTATION

Comment:

"Already our buses are packed to capacity." (Georjean Hewitt)

"Page 4. Provide data on modal split for these trips. Compare with split for all USF trips...

"Page 75. Percentage alumni users vs. percentage community users.

"Page 76. Provide modal split for USF students, faculty, staff....

"Page 79. Traffic from St. Mary's office tower should be factored into discussion of Parker, Stanyan intersections." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

As indicated on DEIR page 78, "The proposed Recreation Center would generate approximately 44 new MUNI trips on weekdays. About 10 of these trips would occur between 5 and 6 PM, the peak hour of new public transit use by people visiting the proposed project. Because MUNI trips would be divided among lines 5, 31 and 43, all of which serve the University, no one line would receive all 10 of the trips, thus none of the lines would be measurably affected by new transit riders from the Recreation Center." During the 5-6 PM hour there are 26 buses on Line 5, 16 on Line 31 and 10 on Line 43;[1] the 10 trips would be distributed over these 52 buses. According to the Greater Haight-Ashbury Cumulative Assessment Report, the 31 line is the most crowded of these lines and the only one of them on which MUNI's service standard is exceeded.[2]

Modal split information was presented on DEIR page 76. Assumptions for use of the recreation center by alumni and community residents and the basis for these assumptions were presented on DEIR page 75.[3]

The 1979 USF TSM (Transportation Systems Management) Report indicated that the modal splits were as follows: students - 55% drive alone, 12% ride share, 20% public transit, 14% walk or bicycle; faculty - 57% drive alone, 24% ride share, 11% public transit, 8% walk or bicycle; staff - 45% drive alone, 19% ride share, 25% public transit, 12% walk or bicycle; and facul-

ty plus staff - 51% drive alone, 22% ride share, 18% public transit, 9% walk or bicycle (numbers may not add to 100% due to rounding). The overall modal split was 53% drive alone, 17% ride share, 19% public transit, and 12% walk or bicycle. A 1980 study showed that implementation of the TSM plan had resulted in a shift of faculty plus staff trips to 42% drive alone, 18% ride share, 24% public transit, 16% walk or bicycle.[4] The modal split used for the USF Recreation Center was 72% auto with an occupancy rate of 1.75 persons per vehicle, 22% MUNI, 6% walk or bicycle.[5] In comparison to the overall campus modal split this is a higher vehicle use rate, a similar transit use rate, and a lower walk or bicycle use rate.

The Greater Haight Ashbury Cumulative Assessment Report states that "Cumulatively generated traffic would not change the level of service rating at any intersection in the study area and volume-to-capacity ratios would increase no more than 3 percent;"[6] therefore, it was deemed that the St. Mary's office tower was not relevant to the description of these intersections on EIR page 79.

NOTES:

1. Total of in- and outbound trips, Seth Green, MUNI Schedule Department, telephone conversation, May 17, 1985.

2. Greater Haight-Ashbury Cumulative Assessment Report, San Francisco Department of City Planning, December 1984, p. 31.

3. De Leuw Cather & Company, Draft Transportation Systems Management Plan for the University of San Francisco, July 1979, p. 12.

4. Ira Fink and Associates, Transportation Systems Management Plan Evaluation Study, Final Evaluation Report, University of San Francisco, December 1980, p. 7.

5. Greater Haight-Ashbury Report, p. 41.

6. Greater Haight-Ashbury Report, p. 45.

LAND USE

Comment:

"...the basic objection to the installation of a commercial power plant... because the people who are building it are going to run it, are going to sell their electricity to the university for a good number of years." (George Coan)

"In the beginning, the project was to give power to PG&E, and they still have that in the back of their mind." (Tina Burgess Coan)

"...the council is concerned over the question of ownership and feels that the EIR is somewhat vague and that it would be helpful to policy makers to have the relationship and the buy back power made abundantly clear...

"It's a smaller project. The appropriateness of the project, however, is still a real question to the Haight-Ashbury Neighborhood Council. It doesn't make a lot of sense to put a power plant in the midst of a residential neighborhood. And certainly it doesn't make the greatest amount of sense to put such a facility at the northern end of the campus where it most directly abuts residences." (Calvin Welch, Haight-Ashbury Neighborhood Council)

"This proposed $2.7 million, 1.9 megawatt power plant would be the first cogeneration power plant built in a residential setting in San Francisco. And it is the first time a cogeneration power plant has come before the Planning Commission. We have several concerns and questions. We would like them addressed in the EIR before the EIR becomes final." (Joel Vantresca, Haight-Ashbury Neighborhood Council, public hearing comments)

"It will permit the institution to go into the business of generating its own electricity while selling surplus power to PG&E for profit.

"The surrounding neighborhood is being asked to absorb serious negative environmental impacts so the university can reduce its PG&E bill. The Commission should address the question of whether or not this is fair" (Joel Ventresca, Haight-Ashbury Neighborhood Council, written comments of April 25, 1985)

"Should people build power plants and sell energy in the neighborhood?...I have a conceptual problem with the cogeneration plant of any size in any location in our neighborhood when its purpose is to raise cash for theoretically an educational institution..." (Ted Thompson)

"We still have a problem conceptually with the power plant, also." (Bob Lee, Francisco Heights Civic Association)

"You are going to have to decide what's appropriate." (Dale Carlson, Stanyan/Fulton Neighborhood Association, public hearing comments)

"...this project will be the first co-generation plant ever constructed in a San Francisco residential neighborhood. It raises several important questions that find no answers in current City policies. Can any institution propose such a project? Are there any limits on the size of such projects? Are projects owned by private concerns unaffiliated with the sponsoring institution appropriate as conditional uses in residential communities? Do the Planning Code and City Master Plan offer guidelines sufficient to judge whether approval of this project opens a Pandora/s box? (Indeed, I cannot find a single reference to the City Master Plan in this draft.) The impor-

tance and the precedent these projects raise is inadequately recognized by this draft...

"[Page 81] Whose interpretation of accessory use is used here? DCP? City Attorney? Is this Commission's policy for all future co-generation proposals?..." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

"...the real question still remains, the basic one we had before, and that is, we have a situation where the primary, dominant land use of the area is residential. And that being the case, that is the overriding thing. The institutional facilities that are there are there as guests of the residential area, and not the reverse...the real question before the Commission is, whether the guests have actually provided something that environmentally is compatible with that use. And when the guests bring to the Commission a proposal which actually provides for generation of power in excess of what is needed, and even to the point where some of it will actually be sold as a commercial activity, then the guests have actually gone beyond their reach of what they have as a valid residential use for that area, what will be permitted by any other property owner in that area. That is really the basic issue before the Commission.

"...that the excessive power that's been asked [for]...not be permitted as part of this whole project, but only the power...that's necessary to function and provide for the facilities on campus." (John Bardis)

"I can't for the life of me see why a commercial endeavor would be permitted in a residential neighborhood. I don't see any excuse for going in competition with PG&E." (Elizabeth Brennan)

Response:

The following text has been added at the bottom of EIR page 81: "The cogeneration site is in an RH-2 zoning district in which Planning Code §204.2(c) permits 'activity of a profit-making or commercial nature' if it is 'an integral part of the permitted principal or conditional use where such activity is expressly permitted by Sections 209.1 through 209.9 of this Code.' (pages 86-87) The University is expressly permitted as a conditional use by Planning Code § 209.3(i). Other conditional uses permitted in an RH-2 District include other types of schools, hospitals, privately owned community facilities, greenhouses with retail sales, and utility installations 'provided that operating requirements necessitate placement at this location.'"

After certification of the EIR, the Planning Commission will consider conditional use permits for the Recreation Center and Cogeneration Facility. At that time there will be an opportunity for public input to the Commission's decision as to whether the cogeneration project meets these criteria and whether the Recreation Center and cogeneration project would be compatible with the neighborhood, would not be detrimental to the health, safety, convenience or general welfare of people living in the neighborhood, and would be in compliance with the San Francisco Master Plan.[1] The Planning Commission has not established any policy with respect to cogeneration facilities at institutions in residential districts.[2]

The size of a proposed cogeneration system at any site would be limited by either or both the requirements to demonstrate that it is part of the principal use on the site and that operating requirements require placement on-site. For economic reasons steam generating facilities have to be near

the point of use, so steam heating would tend to limit the size and location of cogeneration facilities.

The ownership of facilities is not generally considered in evaluation of land use since banks and other financial institutions often own facilities.

The cogeneration plant would be built and operated by Independent Power Corporation (IPC), which would sell power to USF. Eventually USF would buy the facility from IPC and operate it as any other campus facility. USF would buy electricity from PG&E when the plant was not in operation (when there was little or no steam demand), as indicated on DEIR page 26.

The amount of electricity generated by the cogeneration facility would depend on the amount of steam needed. On the basis of projected average steam demand for the University, the Cogeneration System would fall short by 8% of meeting the total electrical demand including that of the Recreation Center. See the responses to energy comments for further discussion.

It would be in the interests of PG&E to buy any surplus power generated by the cogeneration facility at times of high steam demand because, together with the electricity produced by other cogeneration systems, continued conservation efforts and other alternative energy sources, this facility would reduce the need for PG&E to construct new capital intensive nuclear or fossil-fueled generation facilities. In 1984 PG&E purchased nearly 1.9 billion kWh of electricity from cogeneration and biomass facilities.[3]

The following text has been added to the Energy Impacts Section after the above addition to EIR page 81:

"The proposed project would meet the goal of the Energy Element of the Comprehensive Plan for the City and County of San Francisco by "Increasing

the efficiency of energy use" (Goal 1, page 5) and would implement Objective 7, "Develop financing opportunities to implement local energy programs.", Policy 2, "Encourage private financial institutions to offer energy loan programs responsive to local market needs."

See also responses to energy comments.

NOTES:

1. Pursuant to Planning Code § 303.

2. Objective 3, Policy 5, of the Energy Element of the San Francisco Comprehensive Plan encourages use of integrated energy systems and states that cogeneration "might present a feasible and economically attractive energy supply option for new commercial office, mixed use and industrial projects." The Element contains no specific objectives or policies for institutional uses.

3. PG&E Progress, May 1985, p. 1.

ALTERNATE SITE

Comments:

"They state the recreational facility is necessary for their growth; that they are losing students. However, if they are losing students because of such facilities, I would suggest they move their entire school to an area where they can buy sufficient land and grow without restraint. The neighbors do not want their growth, which will congest and downgrade our residential area. Look at what happened at UC Medical Center.

"As for the community using the recreational facility, my family and neighbors have happily used Rossi Playground for years. We do not want nor need this installation." (Georjean Hewitt)

Response:

The recreation center is designed to serve the present student, faculty and alumni population and is not intended or expected to increase student enrollment beyond past levels.

The University of San Francisco has been at its present site for seventy five years. No other appropriate site for such university facilities is available in San Francisco and the University would not consider moving out of San Francisco because of its historic ties to the City. As indicated on DEIR page 49, "When the California Jesuit Mission made its initial property acquisition in the project area, this section of the City was still largely undeveloped. The City's four cemeteries were located to the immediate north and sand dunes were the predominant landscape feature west of Parker Ave. Few homes had been built west of Stanyan St."

INSITUTIONALIZATION OF COMMUNITY

Comment:

"Page 6. Fails to recognize growing institutionalization of community...

"Page 45. Note other projects proposed by St. Mary's, USF, et al..." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

Page 6 is a summary of the impact of the proposed project where additional information is not appropriate. The following sentence has been added to the Environmental Setting Chapter, at the end of the first complete paragraph on page 45: "The proposed project together with other proposed pro-

jects (Cannes apartments; Kezar Stadium reuse; St. Joseph's Hospital conversion into apartments; St. Mary's Medical Office Building; UCSF Vision Research Laboratory; UCSF conversion of Polytechnic High School to housing, recreation or parking or other reuse of this site; and the Urban School expansion) has led to neighborhood concern about potential cumulative impacts on the neighborhood, particularly increased institutionalization." This list includes all proposed projects in the Greater Haight-Ashbury area for which enough information is available to permit analysis.

USF LAND AREAS

Comment:

"Page 41. In table, list size, percentage of site occupied by existing buildings, field, parking lot and project." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

The information requested for page 41 has been added to the Impacts Chapter as new Table 3B on EIR page 81A. The following sentence has been added to EIR page 81 at the end of the first complete paragraph: "Construction of the Recreation Center and associated building demolition would result in a net increase of 2.2% in building coverage of the USF campus (not including Lone Mountain)."

ILLEGAL LAND USES

Comment:

"Page 43. Twilight Cafe is only legal non-residential use adjacent to site. Several residences are suspected to be illegal conversions to com-

Table 3B. Land Use Characteristics of the Project Site.

	all areas in square feet (percentages of campus area in parentheses)
Campus area not including Lone Mountain	1,192,000
Existing ground coverage of buildings	266,000 (22%)
Existing Negoesco Soccer Field	130,000 (11%)
Existing 3 Parking lots involved in project	64,000 (5.4%)
Recreation Center, gross[1]	118,800 (10%)
Recreation Center, net	26,400 (2.2%)

1. Gross area is the area of the new building; net area is the area of the new building minus the area of Loyola Hall to be demolished to give the net new area of building on campus.

mercial use." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

It is not appropriate for an EIR to deal with suspicions of illegal actions.

SMALL AUDIENCE ACCOMODATIONS

Comment:

"Page 88. First and only mention of 'small audience accomodations.' How small? For what purpose? Used how often?" (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

As indicated on DEIR page 19, the Natatorium would contain provisions for seating for 200 spectators, and 600 spectator seats would be removed from Loyola Gym. There would be a platform which would be able to accommodate up to 200 stacking or folding chairs; the seats would not be built in. It is not known how often or by how many persons this spectator space would be used.

VISUAL IMPACTS

Comments:

"As a resident and home owner at 2514 McAllister I am one of the residences that has a view across the soccer field as indicated on page 48. What I am concerned about is the landscape plan on page 21 which indicates wall to wall large screen and accent trees on the south side of the field even though a paragraph on page 20 implies no new landscaping to take place in this area. Presently these large pines without being topped or thinned out block views which I had enjoyed, particularly a vista corridor to the ocean. They also block sunlight in the yards which is a precious commodity in this city. I would suggest no further planting of these trees and maintaining the ones that are there similar to Golden Gate Park where they are thinned out or removed altogether." (Mark Terjesen)

"Page 8. Any landscaping on east side of project? On south end of soccer field? How many trees to be removed?...

"Page 16. Moving scoreboard at soccer field? Raising heighth (sic) of lights?

"Page 48. How many cypress tress? Elsewhere in draft described at 70-75 feet tall. How many to be removed? Replaced?

"Some McAllister Street residences have views of the Pacific. Some had views now blocked by scoreboard...

"More specific on trees to be removed and replacement landscaping...

"Page 83. Change in heighth of light standards?

"Will McAllister homes lose ocean views?" (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

The trees at the McAllister side of the soccer field are subject to a regular pruning program which is designed to maintain the health of the trees. As many of these trees as possible would be preserved as part of the landscaping of the proposed project.[1] These trees serve to screen views of the playing field and the parking area beyond it and to partially block noise from the playing field. The 20-30 ft. junipers and pines mentioned on EIR p. 51 are west of the soccer field, while the 30-35 ft. cypresses mentioned on EIR p. 48 are south of the soccer field. Note that the Landscaping Plan on EIR p. 21 does not distinguish between existing and new trees on the south side of the soccer field and that this plan is conceptual and does not represent the future density of planting.

As indicated on the Landscape Plan, DEIR p. 21, there would be landscaping on the east side of the Multipurpose courts, the existing Loyola Gymnasium, Negoesco Soccer Field, and the parking lot.

The soccer field score board would be moved to the southwest corner of the soccer field. The existing soccer field lights would be moved without any change in height.

No views from McAllister Street homes would be blocked by the Recreation Center because, as indicated on DEIR pp. 83-84, the new buildings would be about 20 feet shorter than the building to be demolished and would produce less view blockage because of their lower profile. No ocean views would be blocked by new landscaping or moving the soccer field scoreboard.

NOTE:

1. Glenn Loomis, Plant Manager, University of San Francisco, telephone conversation, May 16, 1985.

DESIGN

Comment:

"We had hoped to see the final sketches, the Recreation Center, before this meeting this afternoon. But we have been guaranteed that the university will take the Recreation Center and make it earth tones in color and scheme, if possible. We are very happy about that. We would like to see further drawings of the northwest corner which directly influences our life-style, and that would be the corner of Turk and Stanyan where the Recreation Center will be very visible at that point." (Bob Lee, Francisco Heights Civic Association)

Response:

Final plans for the Recreation Center have not been drawn. USF is willing to arrange for interested neighbors to see detailed recreation center

designs when they are completed.[1] The University is committed to the use of earth tones on the exterior of the Recreation Center.

NOTE:
1. Glenn Loomis, Plant Manager, University of San Francisco, telephone conversation, May 17, 1985.

BUILDING AREAS AND HEIGHTS

Comment:

"Page 16. Please provide table of existing, proposed square footage; size of site currently, to be occupied; FAR's, heighth of proposed building at Stanyan/Turk, McAllister / Stanyan, etc.

Response:

What is referred to as the site of the Recreation Center is a portion of the USF campus which does not have a defined boundary, therefore, the concept of floor-area-ratio (FAR) is not relevant. See table of existing and proposed square footages given in the table 3C, page 194.

The heights of the elevations of the Recreation Center buildings are given in Table 3D, page 194.

HEALTH HAZARDS

Comments:

"USF has 3 PCB-containing transformers on campus. When will they be replaced and where are they located." (Joel Ventresca, Haight Ashbury Neighborhood Council, written comments of April 25, 1985)

Table 3C. Existing and Proposed Building Areas.

Building	Existing Area sq.ft.	Proposed Area sq.ft.	To Be Demolished sq.ft.	Information On DEIR Page(s)
Loyola Hall	91,000		91,000	16
Loyola Gym	12,400	12,400	1,400[1]	16, 19
Racquetball Courts		5,500		16
Natatorium		57,100		16
Multipurpose Courts		43,200		16
Passages between Recreaction Center units		600		16
TOTALS	103,400	118,800	92,400	16

1. 1,400 new sq. ft. would be built so the proposed area of 12,400 sq. ft. equals the existing area.

Table 3D. Tentative Building Heights[1]

Average height of west elevation (facing Stanyan St.)	32 ft.
Average height of north elevation (facing Turk St.)	37 ft.
East elevation of existing Loyola Gym	21 ft.
Maximum east elevation of Natatorium (facing soccer field & Parker Ave.)	20 ft.
East elevation of Multipurpose Courts Bldg. (facing parking lot & Parker Ave.)	14 ft.

1. Heights are based on architect's interpretation of Planning Code §§ 250, 253, 260 and 261. Subject to change on basis of planning staff analysis.

"Page 86. List all chemicals in use at site and known hazards, health effects.

"Page 87. What sections of Fire Code cover co-generation plants? Other local, state, federal standards applicable?..." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

As indicated on DEIR page 86, if the cogeneration facility were built, the transformer used to replace the three existing ones associated with the boiler plant at Gleeson Library "would not contain polychlorinated biphenyls (PCBs), preventing the risk of PCB contamination in the event of a transformer fire." It is not known when during construction the replacement would take place.

Potential hazardous materials which would be used at the Recreation Center other than those listed on DEIR p. 86 are cleaning materials, disinfectants, floor waxes, any of a variety of commercial products for treatment of boiler feedwater to prevent scaling of the inside of the boiler and corrosion of boiler or piping. Materials to be used have not been selected yet. Boiler chemical needs will be determined by tests after the plant is operational.

The hazards and health effects of the substances listed on DEIR p. 86 are given in Table 3E on page 196. As is usual in the case of swimming pool and boiler chemicals, the general public would not come in contact with these chemicals, and USF staff handling them would be trained to use them safely.

The main regulatory authorities for the Cogeneration Facility were given on DEIR pp. 27 & 29. A partial list of laws and regulations applicable to

Table 3E. Hazards and Health Effects of Hazardous Materials Expected to be Used in Project

Substance	Hazard[1]	Health Effects[3]
chlorine	oxidizing agent	affects respiratory system; causes burning of eyes, nose & throat, tears, cough, nausea, choking, dizziness, pneumonitis
sodium hydroxide	NFPA Reactivity 1[2]	affects eyes, respiratory system, skin; causes nasal irritation, pneumonitis, eye & skin burns
sulfuric acid	NFPA Reactivity 2[2]	affects respiratory system, eyes, skin, teeth; causes irritation of eyes, nose & throat, emphysema, bronchitis, skin & eye burns

1. Hazards listed in National Fire Codes, 1981, Recommended Practices and Manuals, NFPA 49-1975, Hazardous Chemical Data, National Fire Protection Association.

2. Reactivity on a scale of 0 to 4, where 4 is most reactive.

3. Mackison, Frank W., et al., Eds, NIOSH/OSHA Pocket Guide to Chemical Hazards, U.S. Department of Health, Education and Welfare, 1978.

Source: Bendix Environmental Research, Inc.

health and safety aspects of the Cogeneration Plant is given in Table 3F beginning on p. 197.

Table 3F. Laws and Regulations Affecting Health & Safety of the Cogeneration Facility

Code	Regulates
Federal Laws	
Clean Air Act (42 USC[1] §s 7401-7642)	establishes air pollution standards and emission control limits
Occupation Safety and Health Act of 1970 (29 USC 1331 et seq.)	worker safety and health in construction and operation
Toxic Substances Control Act of 1976 (15 USC 2601 et seq.)	regulates use of PCBs
Hazardous Materials Transportation Act of 1974 (49 USC 1801 et seq.)	regulates transportation of chlorine and other designated hazardous materials
California Laws	
California County Air Pollution Control Law (Cal. Health and Safety Code §§ 410100-40126)	performance standards adopted by BAAQMD for new air pollutant emitting equipment; limits increases of emissions from an expanded facility
AB 524, 1979	permits cogeneration plants of 50 mW and less if best available control technology used and offsets provided
AB 1862	incremental emissions benefit derived from cogeneration system electrical production and consequent displacement of local utility hydrocarbon combustion emission to be taken into account in offset determination
California Environmental Quality Act (CEQA, California Public Resources Code §§ 21000-21176)	establishes environmental review process

(continued on next page)

Table 3F. Laws and Regulations Affecting Health & Safety of the Cogeneration Facility (Con't)

Code	Regulates
Guidelines for Implementation of the California Environmental Quality Act (California Administrative Code, Title 14, §§ 15000-15387)	procedures for implementation of of CEQA
California Noise Control Act of 1973 (California Health and Safety Code, §§46000-46080	requires noise control element in general plan
Cal OSHA (California Labor Code, Title 8)	regulates health and safety of workers in construction and operation
Regional	
Bay Area Air Quality Management District Rules and Regulations	detailed air quality standards, permit requirements and procedures
San Francisco	
San Francisco Right-to-Know-Ordinance, San Francisco Fire Code, Article 29 (§§ 2901-1999.1)	establishes permits for hazardous materials and public disclosure of location
San Francisco Building Code and Mechanical Code, 1984 Edition, by reference Uniform Mechanical Code, 1979 Edition	construction and installation standards for boilers and other mechanical equipment
San Francisco Noise Ordinance (San Francisco Police Code, Article 29, §§ 2900-2918)	noise emission limits
San Francisco Administrative Code, Chapter 31, Environmental Quality (§§ 31.01-31.50)	local CEQA implementation procedures

1. USC = United States Code.

Source: Bendix Environmental Research, Inc.

HEALTH HAZARDS: RODENTS

Comments:

"...I am concerned about the impact the demolition of the existing building will have on the neighborhood, particularly with regard to rodents.

"I would like to request that the University be required to exterminate prior to demolition and that all measures with regard to preservation of the residential area be taken." (Mary Hart Thompson)

"[Page 90] Many neighbors concernced about rats in Loyola Hall. Consider mitigation measure calling for extermination prior to demolition." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

As a part of normal campus procedures, USF would have rodent extermination done prior to demolition to protect other campus buildings as well as neighbors from possible rodents.[1]

NOTE:

1. Glenn Loomis, University of San Francisco, telephone conversation, May 17, 1985.

GROWTH INDUCEMENT

Comments:

"The draft is very sketchy in the growth-inducing impacts of this particular power plant.

"As previous witnesses have stated and as the EIR clearly states, this is an incredible increase in the capacity. And since there is no discussion of actually removing the subsidiary power plants in the other projects, in the other buildings, the potential, if you take a look at the Master Plan of the University of San Francisco, the potential for this power facility actually increasing, both in terms of square footage and rate of development of future development on the site on campus, is a very real question. And it is a concern of the Council that this EIR address the growth-inducing impacts of the power plant in greater detail than the very sketchy discussion that exists in this draft." (Calvin Welch, Haight-Ashbury Neighborhood Council)

"The university has 20 buildings with 1.3 million gross square feet of space...master plan...calls for 10 new construction projects that will add 400,000 gross square feet of space to the campus which would be a 31% increase over what they currently have.

"The projects before you today seem to change the master plan, and the university should update their master plan before they proceed with their various developments. For example, the recreational center has grown from 70,000 gross square feet in the master plan to the current 119,000 gross square feet project you have before you today. That's 70% larger than what is in their master plan...the power plant...encourages institutional expansion and growth by setting up the infrastructure to meet the energy needs of 400,000 additional square feet of construction currently identified in their master plan.

"The EIR states on page 57 that, 'The cogeneration system would be sized so that buildings proposed in the USF Institutional Master Plan (if con-

structed) could be served by the system by increasing the number of hours the system operates from 16 hours per day to 24 hours per day.'

"And on page 58 the EIR states, 'an additional annual electrical demand of about 4.6 million kWh would be expected if all buildings proposed in the USF Master Plan are constructed. With Master Plan buildout, the total annual USF electricity use is projected to be 14 million kWh, about 90% of the estimated electricity production of the proposed cogeneration system when operated at full capacity.'

"So in otherwords, if USF builds everything in their master plan all the energy needs will be met by this plant, and they will still have 10% of the capacity of the plant to spare for more construction or to sell the power to PG&E..." (Joel Ventresca, Haight Ashbury Neighborhood Council, written comments of April 25, 1985)

"We think this EIR needs to talk more about growth inducement. The fact that this plant is sized to meet projected expansion programs at the university, considering the fact that it's going to contribute to the further institutionalization of this residential community..." (Dale Carlson, Stanyan-Fulton Neighborhood Association, public hearing comments)

"...what will be the cumulative impacts about excessive power capacity infrastructure on the institution facilities which then put a greater impact on the community in terms of housing shortage because we have an attraction presumably of additional students." (John Bardis)

"Page 6. Co-generation plant sized to meet future needs. If energy costs decrease for USF, less costly to maintain new buildings. That would be

growth inducing." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

As previously stated in the responses to energy comments, the cogeneration facility is not sized to provide for growth and, in fact, on an annual average would provide 8% less electricity than USF would need. The plant is sized to meet the steam heating demand of the existing buildings to be served and of the proposed Recreation Center.

The DEIR statement cited from page 57 is incorrect and has been corrected, as indicated in responses to Energy Comments, starting on Comments and Responses page 6. Implementation of the Institutional Master Plan would not affect the operating hours of the cogeneration steam system since steam cannot be produced at night, when the system would not be running at full capacity, and stored for use in the daytime, the time of peak demand when classrooms and offices are all in use.

The economic feasibility of the Cogeneration System is not dependent upon operation more than 16 hrs./day. University operational expenses for any future projects implementing the Institutional Master Plan would be slightly less with a cogeneration system available than without it, see discussion of potential for generation of additional steam and figure explaining demand/consumption relationships in the response to Energy Comments. The main constraint on further implementation of the Institutional Master Plan is the availability of funds for construction of future buildings. The cost of electricity and heating for new buildings would not be a determining factor in the decision to build them. Operating costs for the buildings to

be supplied by the cogeneration system would rise more slowly with implementation of the system than they would without it.

As indicated on DEIR page 22, no power would be generated beyond that generated in the process of producing steam for building heating needs because "If USF were to run the electrical generator at a time of no steam demand, venting exhaust heat to the environment without benefit of heat recovery, the system would not be economical...Electrical power would be purchased directly from PG&E during periods when USF does not require steam."

No electricity beyond space heating steam demand would be generated, because it would be uneconomical to do so and because relevant laws only require PG&E to buy cogenerated electricity at "avoided cost" rates. Any additional electricity would be expensive to generate and could not be sold for as much as the cost to generate.

There are no existing power plants in other campus buildings; the existing boilers would be retained for use as backup for heating during maintanance of the new steam heating boilers.

The 1979 USF Institutional Master Plan indicated that the Recreation Center would be 170,000 sq. ft. (p. 96) of which all but the swimming pool building would be underneath Ulrich Field. The 1983 Institutional Master Plan Supplement specified the same 170,000 sq. ft. for the Center with a 70,000 sq ft. building and the remaining portion underground (p. 11). The proposed project calls for a 118,000 sq. ft. Recreation Center, less than planned in either the 1979 or the 1983 document. The Recreation Center is intended to serve the existing student body, not to attract new students.

ECONOMICS

Comments:

"How does the developer expect to make money from this project?" (Joel Ventresca, Haight-Ashbury Neighborhood Council, written comments of April 25, 1985)

"Describe ROAN Corporation's current involvement in this project." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

Steam for space and water heating must normally be at a relatively low temperature and pressure in order to be safely distributed by the piping system. Fossil fuels burn at a much higher temperature and, when confined, pressure. By having the energy of the burning fuel first power an engine-generator and using the exhaust, which is at a lower temperature and pressure than the combustion mixture, to generate steam, a higher efficiency can be achieved. By reducing the amount of waste heat going up the stack, the plant operator reduces operating costs which are a factor in the determination of profit. Profits are not an environmental impact, hence do not require discussion in an environmental impact report.

ROAN Corporation has no current involvement in this project. They were consulted earlier when they considered financing the larger cogeneration facility originally considered.

CUMULATIVE IMPACTS

Comments:

"The subject report makes no mention about the proposed San Francisco Day School project (File No. 85.172E) which is to be located at 350 Masonic Street, clearly in the immediate vicinity of the subject project(s). It is my firm belief that there will be significant increases in the levels of noise, traffic and parking congestion in the immediate area if the Day School project is approved. The cumulative impacts must be addressed in the final USF report as well as any reports prepared by or on behalf of the San Francisco Day School." (Hal Freedman)

"We have appeared before you a couple of different times now to talk about the cumulative impacts of a number of projects that are proposed in this area: a project sponsored by St. Mary's and UC, as well as USF, and several other institutions. I don't [see] mention any of those projects in this EIR. I think that's a gross deficiency in this document." (Dale Carlson, Stanyan/Fulton Neighborhood Association, public hearing comments)

"...Why was the Greater Haight Ashbury Cumulative Assessment Report (inadequate though it is) excluded from the appendix? How can projects identified in USF's Master Plan be ignored when the co-generation plant is specifically designed to meet the University's anticipated expansion? Now that public notices have been filed regarding the proposed conversion of the mortuary at Masonic and Golden Gate to a private school, that project should be included and discussed.

"...these projects mean that our community is becoming more institutional and less residential in character. This shift, subtle and difficult to

quantify as it may be, is a factor in growth inducement. Given the score of projects proposed for our neighborhood in the next decade, this concern is genuine, well-founded and appropriate for Departmental action, yet grossly understated in the draft." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments, May 10, 1985)

Responses:

The proposed San Francisco Day School project would be about 2000 feet from the parking lot (seven short blocks) and somewhat further from the Recreation Center. Information is not yet available on predicted trip generation from this project.

Cumulative air quality impacts were discussed on EIR pages 63-64 on the basis of the cumulative air analysis in the Greater Haight-Ashbury Cumulative Assessment Report which analyzed trip generation from the USF project, St. Mary's Medical Office Building, the Cannes Apartments, the Polytechnic High School conversion, and the UCSF Vision Research Module.

Cumulative noise impacts of the proposed project, St. Mary's Medical Office Building, and other projects in the greater Haight study area were discussed on DEIR pages 71-72.

Cumulative construction traffic from the USF project and the St. Mary's Medical Office Building was discussed on DEIR pages 73-74 on the basis of the analysis in the Greater Haight-Ashbury Cumulative Assessment Report.

DEIR page 79 indicated that the proposed project would generate about 3% of the total net new daily vehicle trips in the Greater Haight-Ashbury cumulative study area based on the Greater Haight-Ashbury Cumulative Assessment

Report, which analyzed trip generation from the USF project, St. Mary's Medical Office Building, the Cannes Apartments, the Polytechnic High School conversion, and the UCSF Vision Research Module.

The cumulative visual impacts of the USF project and the St. Mary's Medical Office Building were discussed on DEIR page 85.

The Greater Haight-Ashbury Cumulative Assessment Report was not included as an appendix to this EIR just as other referenced documents were not included. A copy is available for public review at the Department of City Planning, 450 McAllister Street.

The cogeneration plant is sized to meet the steam demand of the existing buildings to be served and the proposed Recreation Center, not of the Institutional Master Plan.

A statement regarding community perception of the cumulative impacts of proposed projects on the character of the neighborhood has been added to the EIR text, in the response to Land Use comments.

MITIGATION MEASURES

Comments:

"Since the Vista Skyliner is an existing private service operating under CPUC authority, we are unclear what is implied by USF agreeing to 'participate' in the Vista bus system as a transportation mitigation system. If any changes to Vista's present operations are implied here, we would like to be informed of such changes; if subsidies are implied for Vista here, some form of subsidy should also be made available to partially subsidize

MUNI fast passes and other transit tickets for employees and students that use public transit." (K.L. Wong, MUNI Planning Staff)

"Page 92. Supervisors recently banned those buses [Vista] from Stanyan and Parker." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

"The financial arrangement between the university and the developer is still under negotiation. The issues of ownership and profit are still up in the air. The private developer evidently will finance the project, and if this is so what benefits will the private developer receive and what degree of control over the plant will the private developer have? Will the private developer and university commit themselves to all the mitigation measures?

"...and the university has not committed itself to all the mitigation equipment to reduce noise which is identified in the report (page 89). (Joel Ventresca, Haight-Ashbury Neighborhood Council, written comments of April 25, 1985)

Response:

As indicated in the responses to Parking comments, the parking is not free and USF does not wish to increase the fees because this would tend to displace parking onto neighboring residential streets. Public transit use by USF employees increased from 18 percent to 24% in the first year of implementation of the Transportation Systems Management Plan at USF.[1] USF is not willing to subsidize transit passes for employees and students.

The Vista Skyliner was a private commuter bus service linking San Francisco's Sunset District and northern San Mateo County with nine San Francisco Hos-

pitals and universities, including USF. The USF Transportation Broker publicized availability of this service. This service has been cancelled.[2] The commenter is correct about the banning of buses from Stanyan and Parker Sts., all tour and interurban buses were banned from these streets by the Board of Supervisors on March 14, 1985, by Resolution No. 122-85.

Issues of ownership and profit are not environmental issues and therefore not required to be discussed in an environmental impact report.

There is no contract between USF and the private developer yet. Mitigation measures included in permit conditions would become part of the contract.[3]

As indicated on DEIR p. 89, all the noise mitigation measures listed on pp. 89-90 are part of the project proposed by USF, that is, the University is committed to their implementation. The developer is committed to implementation of the mitigation measures.[4]

NOTES:

1. Ira Fink and Associates, Transportation Systems Management Plan Evaluation Study Final Evaluation Report, University of San Francisco, 1980, p. 2.

2. Stan Silvera, Vista California Tours, telephone conversation of May 17, 1985.

3. Glen Loomis, Plant Director, USF, telephone conversation of June 12, 1985, and letter of July 1985.

4. Glen Loomis, Plant Director, USF, letter of July 31, 1985

ALTERNATIVES

Comments:

"...we find out about six months ago, they have a parking lot empty there. And the project, it was moved to there. One of the professors is married

to one of the supervisors, and they raise enough power in the city than the project bounce back again on Golden Gate. Now wehave the same problem that we studied a year ago in front of our house. And our neighbors, our old people, they are concerned about it." (Tina Burgess Coan)

"The one thing that I do think was very confusing in this report, I don't know whether it's by accident or by intention, but this report shows perhaps five different locations for a cogeneration plant. I only know one other neighbor who was even aware of where it was...It was so confusing. They thought it was Kendrick Hall. Then it was thought to be in front, and then there were a couple other locations...

"...we are having a hearing on this report, but the problem is nobody knows where this location was...I know no idea why they have so many areas listed, and then to come into a hearing and hear it on one specific location -- namely, the one by my house." (John Smalley)

"I think they have done a remarkable job since they announced these plans, in revising and changing them and making them more compatible with neighborhood interests. The windmills are completely gone and the power plant is reduced." (Ted Thompson)

"...what would be the alternatives that would be more valid in terms of this institution to proceed? It speaks to a question of declining enrollment, and that's why the need for recreation and health facilities. And no one in the community obviously is objecting to that because that is certainly a very compatible use for the guests to use in terms of carrying out their primary function...Certainly the declining enrollment might come in part from the fact that we haven't done so well in managing our affairs as a city in providing...the housing we should have been providing for 20

years. And so those students who try to come to that institution don't have the housing on campus. If they find it off campus, they're completely priced out and they can't even afford to come to the institution. The institution in part is responsible for that and should be providing housing on its campus.

"I think your real question is: What should have been done in terms of facilities expansion to provide for the parking and housing that the university lacks..." (John Bardis)

"Page 2. Note change in site; size of Rec Center since Master Plan was submitted...

"SFNA has [a] letter from USF dropping windmills. EIR should more strongly indicate inappropriateness of this project.

"Many neighbors concerned for parking lot entrance on Turk. Residents of Beaumont have a particularly difficult time turning onto Turk, and there is a Muni bus stop at the proposed entrance. Please consider and assess an alternative entrance on Parker...

"Page 68. Can Rec Center be constructed in phases (i.e., pool, multi-purpose courts)? Is this planned or expected? Provide construction schedule for this scenario. Would USF wait until all financing committed?...

"[Page 76] Consider/assess alternate location for parking lot entrance.

"Page 97. This is a larger project than proposed in Master Plan. Discuss." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Responses:

The cogeneration facility would not be in a parking lot but in the existing boiler room under Gleeson Library, as indicated on DEIR pages 2 and 43. Potential alternative sites for a cogeneration facility were discussed on DEIR pages 100-110. The discussion of project alternatives is legally required by the California Environmental Quality Act as an aid to evaluation of the project development process by decision-makers and the public. Figure 2, page 14, Figure 8, page 24, Figure 9, page 25, Figure 10, page 28, and Figure 11, page 38, identify the Gleeson Library site of the present proposal for the cogeneration facility.

The regular USF student body does not use all of the present dormitory space and USF uses this space to house participants in special, short-term University programs. USF feels that the present on-campus housing meets the needs of their student body.[1] The USF Institutional Master Plan indicates that additional housing may be built between 1988 and 1993,[2] this housing may not be built for more than ten years.[1]

See Parking Comments and Responses for discussion of provision of additional parking on the USF campus.

The USF Institutional Master Plan originally called for a swimming pool and recreation center on and under Ulrich Field at the east end of campus, with an area of 170,000 sq. ft.[2] This report states: "The alternative is to locate the Recreational Center on the Loyola Field site and to relocate the soccer field presently located on that site to Ulrich Field."[3] The 1983 supplement specified the same 170,000 sq. ft. for the Center with a 70,000 sq. ft. surface building and the remaining portion underground (p. 11).[4]

As indicated on DEIR p. 16, the current Recreation Center proposal would encompass 118,000 gross sq. ft. of building and would be less than that proposed in the original Institutional Master Plan and in the Master Plan Supplement. The functions specified in the peoposal would also be the same as those outlined in the two documents.

As indicated on DEIR pp. 2-3, Initial environmental evaluation of the propasal for windmills on campus "raised concerns that led USF to delete the windmill project from its energy program. The windmill project is, therefore noted only as a discarded alternative in this document. If, at any time in the future, USF proposes a windmill project, that project would be subject to independent environmental review."

See response to Parking comments for coverage of a parking entrance on Parker St.

The Recreation Center could be constructed in phases. This is not expected but would depend on available funds. The scheduling of any phased construction would depend on funding availability and would be determined after any decision to undertake phased construction.

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1. Glenn Loomis, Plant Director, University of San Francisco, telephone conversation, May 16, 1985.

2. Pflueger Architects, Institutional Master Plan, University of San Francisco, 1979, pp. 66-70 and 96.

3. Ibid., p. 120.

4. Pflueger Architects, Institutional Master Plan, University of San Francisco, Supplement, February 1983, pp. 9 and 11.

TOPICS FOCUSSED OUT OF EIR

Comments:

"Page 54. Provide data on student population, past 5-10 years, by year.

"Page 55. Discussion of project ownership still appropriate. Who receives revenue from PG&E? Is it taxable? Is property under plant taxable? Etc." (Dale Carlson, Stanyan/Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

As indicated on DEIR pages 53-54, the subject of population was focussed out of the EIR. In the absence of an indication of why information on the history of student enrollment would be significant, no additional information is deemed necessary.

Ownership of a project is not an environmental impact and, thus, was not discussed in the DEIR. For the information of interested persons: the plant would be owned and operated by Independent Power Company (IPC) for seven years; revenue from power sales would be received by IPC until ownership was assumed by USF, which would then receive the revenue; all revenue from power sales would be taxable regardless of ownership; USF ownership of the property under Gleeson Library and the Cogeneration Facility would be unaffected by the proposed project; and USF-owned land is not subject to property tax because it is owned by a religious institution.

EDITORIAL COMMENTS

Comments:

"Page 59. OTA is a Congressional, not a Federal, office."

"[Page 66] Elsewhere homes reported 140 feet away." (Dale Carlson, Stanyan/ Fulton Neighborhood Association, written comments of May 10, 1985)

Response:

The term "Federal" refers to the federal government which has three branches, one of which is Congress.

In some places in the EIR the 140 foot distance has been rounded to approximately 150 feet.

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ERRATA

DATE: August 16, 1985

TO : Recipients of the USF Draft Summary of Comments and Responses

FROM: Office of Environmental Review

RE : 83.469E, Draft Summary of Comments and Responses

The following clerical errors in the text of the Draft Summary of Comments and Responses document will be corrected in the Final EIR. The corrections will not alter the meaning of the text; instead they will clarify several sentences that are now difficult to follow.

Page 18, line 7: The phrase "Page 22, last sentence", should be replaced by "Page 22, paragraph 1, last sentence".

Page 40, 4th line from end: The EIR page reference should be "EIR p.91:".

Page 73, line 14: The reference to "EIR p. 71" should be "EIR p.51".

Page 73, line 15: The phrase "30-35 ft. cypresses" should be changed to "20-30 ft. junipers and pines".

Page 85, last paragraph, line 5: The word "swimming" should be replaced by "remaining".

Page 91, footnote 4 should be: "Glenn Loomis, Plant Director, USF, letter of July 31, 1985".

page 94, last line: The footnote number "4" should appear at the end of the sentence.

6873B

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August 21, 1985

TO: Recipients of Draft Comments and Responses

FROM: Office of Environmental Review

RE: Staff-Initiated text changes for 83.469E, University of San Francisco Health and Recreation Center and Cogeneration System Environmental Impact Report

The attached material is forwarded to you to supplement the material provided in the Draft Comments and Responses of July 19, 1985.

STAFF-INITIATED TEXT CHANGES

The following statement has been added as a new paragraph after the partial paragraph at the top of EIR page 63: "Excessive ground level concentrations of air pollutants emitted from stacks such as the one on Gleeson Library are sometimes caused by 'downwash, wakes and eddies caused by nearby structures.'[2] This type of air pollution is not expected; however, in order to insure that that this would not occur the emissions of the cogeneration facility would be modeled and any changes in design required to meet the concerns of the BAAQMD would be made.[3]"

Footnotes 2 and 3 have been added to EIR p. 64, as follows:
"2. Federal Register: Vol. 47, No. 26, February 8, 1982.
3. Should any increase in stack height be required it would be within the limits provided by the Planning Code."

The following statement has been added to EIR p. 58: "USF electrical use and production characteristics with the proposed project are shown in Figure 15B." [see p. 219]

Table 3, Air Pollutant Emissions, DEIR p. 61, has been updated for the new Waukesha engine now proposed for the cogeneration system, Comment & Responses p. 101. This engine would produce less nitrogen oxides and non-methane hydrocarbons and more carbon monoxide than the Cooper engine originally proposed. As indicated in the revised table, BACT would still be triggered by the nitrogen oxide emissions, requiring a permit from the BAAQMD. The table has been rearranged to facilitate comparison of emission levels to trigger levels. [see p. 220]

The parking mitigation measure from page 91 of the DEIR which was revised at page 55 (last full paragraph) of the Draft Summary of Comments and Responses should be deleted from the documents. This measure had been proposed early in the review process when it was anticipated that the Recreation Center site-plan would result in a large loss of parking spaces at the Loyola site (Block 1144). With the revised plan now proposed, the loss of spaces on site is reduced to seven, and these have already been offset by the creation of six new spaces at Cowell Hall and three at Plant Services (both locations on the main campus) by the restriping of existing lots.

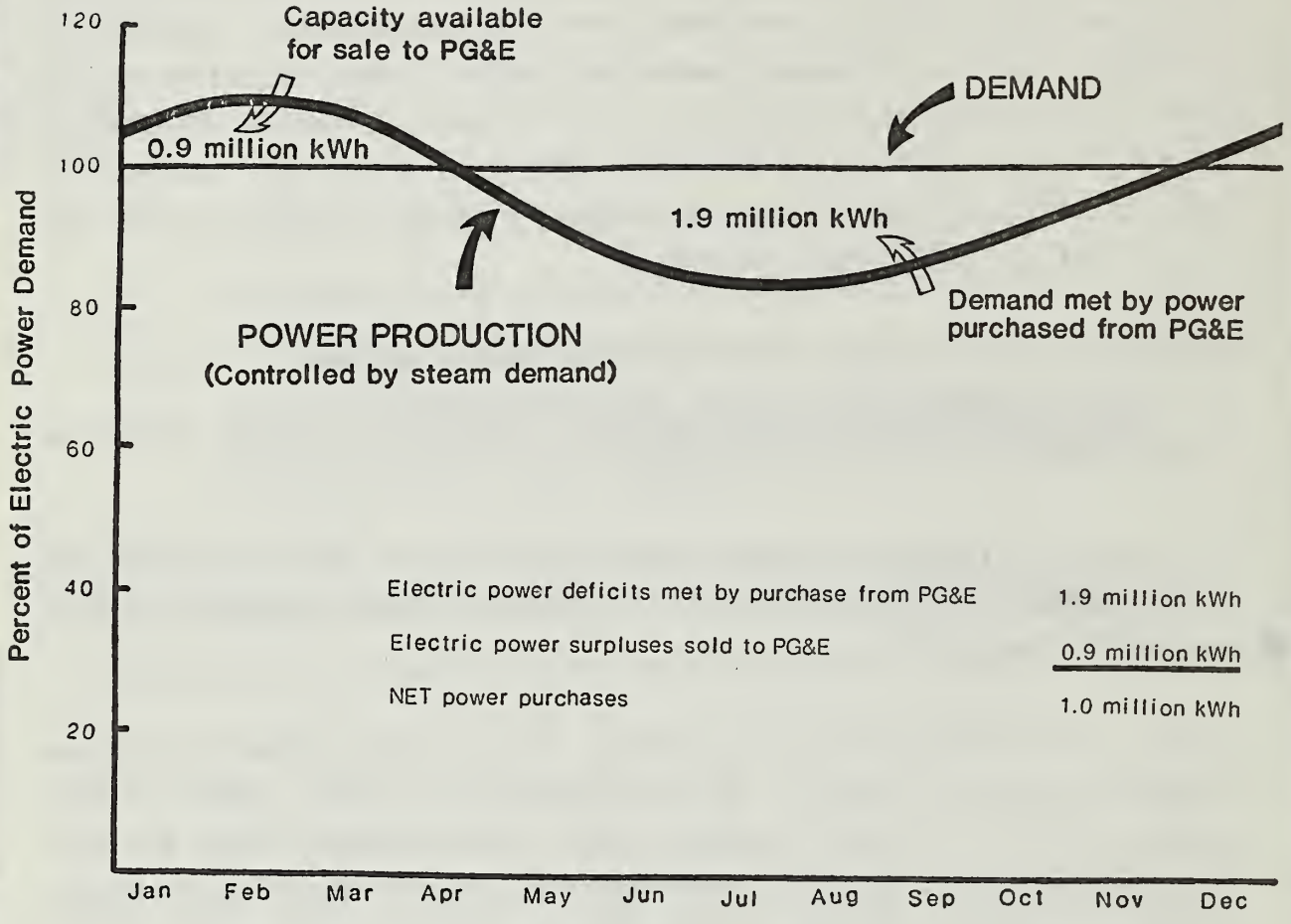

FIGURE 15B

SCHEMATIC REPRESENTATION OF ELECTRIC DEMAND VS. PRODUCTION

USF COGENERATION FACILITY

Source: Bendix Environmental Research,Inc.

TABLE 3. Air Pollutant Emissions

Pollutant	1987 Projected Regional Emissions[1] (tons/day)	Project Emissions[4,6] (tons/day)	PSD[3] Trigger Level[2] (tons/yr)	Project Emissions[4,6] (lbs/day)	BACT Trigger Level[2] (lbs/day)	Percent of Regional Emissions
Nitrogen Oxides (NO_x)	692	0.10	40 (0.11 tons/day)	226	150	0.00016
Carbon Monoxide (CO)	3,367	0.17	100 (0.27 tons/day)	339	550	0.00005
Hydrocarbons (HC)	797	0.06	NA[5]	113	150	0.00008
Total Suspended Particulates (TSP)	192	0	25	0	150	0

1. Association of Bay Area Governments (ABAG, BAAQMD, MTC, Bay Area Air Ouality Plan, 1982, p. 53. The region is the nine county Bay Area Air Quality Management District.
2. Trigger Levels = exceedence limits above which pollution controls must be used and permits are required.
3. Federal Regulations on Prevention of Significant Deterioration, 40 CFR 52.21.
4. Approximate values, provided by Robert Fishman, FMC Associates, Engineers, telephone conversation of August 12, 1985.
5. NA = not applicable because there is no federal standard.
6. These are worst case estimates, assuming 24-hour operation at full load; 24-hour operation is unlikely.

Source: BAAQMD Regulation 2, Rule 2, and Bendix Environmental Research, Inc.

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San Francisco, CA 94118

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San Francisco Bay Guardian
2700 - 19th Street
San Francisco, CA 94110
Attn: Patrick Douglas, City Editor

San Francisco Business Journal
635 Sacramento Street, Suite 310
San Francisco, CA 94111
Attn: Kirstin Downey

San Francisco Chronicle
925 Mission Street
San Francisco, CA 94103
Attn: Evelyn Hsu

San Francisco Examiner
110 - 5th Street
San Francisco, CA 94103
Attn: Gerald Adams

San Francisco Progress
851 Howard Street
San Francisco, CA
Attn: E. Cahill Maloney

The Sun Reporter
1366 Turk Street
San Francisco, CA 94115

Tenderloin Times
146 Leavenworth Street
San Francisco, CA 94102
Attn: Rob Waters

LIBRARIES

Documents Library
City Library - Civic Center
San Francisco, CA 94102
Attn: Faith Van Liere

Environmental Protection Agency Library
215 Fremont Street
San Francisco, CA 94105
Attn: Jean Circiello

Stanford University Libraries
Jonson Library of Government Documents
State and Local Documents Division
Stanford, CA 94305

Government Publications Department
San Francisco State University
1630 Holloway Avenue
San Francisco, CA 94132

Hastings College of the Law - Library
200 McAllister Street
San Francisco, CA 94102

Institute of Governmental Studies
1209 Moses Hall
University of California
Berkeley, CA 94820

File No. 83.469E
Address: University of San Francisco
Blocks 1144 and 1145
Bounded by Stanyan, Turk,
Parker, McAllister, and by
Golden Gate, Parker, Fulton,
and Masonic Streets.

SAN FRANCISCO

CITY PLANNING COMMISSION

MOTION NO. 10406

ADOPTING FINDINGS RELATED TO THE CERTIFICATION OF A FINAL ENVIRONMENTAL IMPACT REPORT FOR A PROPOSED HEALTH AND RECREATIONAL CENTER LOCATED ON THE PROPERTY BOUNDED BY STANYAN, TURK, PARKER AND MCALLISTER STREETS, AND FOR A PROPOSED COGENERATION SYSTEM LOCATED ON THE PROPERTY BOUNDED BY GOLDEN GATE AVENUE, PARKER, FULTON AND MASONIC STREETS.

MOVED, That the San Francisco City Planning Commission ("Commission") hereby CERTIFIES the Final Environmental Impact Report identified as case file No. 83.469E, University of San Francisco Health and Recreation Center and Cogeneration System, based upon the following findings:

1) The City and County of San Francisco, acting through the Department of City Planning ("Department") fulfilled all procedural requirements of the California Environmental Quality Act (Cal. Pub. Res. Code Section 21000 et seq., "CEQA"), the State CEQA Guidelines (Cal. Admin. Code Title 14, Section 15000 et. seq., "CEQA Guidelines") and Chapter 31 of the San Francisco Administrative Code ("Chapter 31").

a. The Department determined that an EIR was required and provided public notice of that determination by publication in a newspaper of general circulation on December 2, 1983.

b. On March 22, 1985, the Department published the Draft Environmental Impact Report ("DEIR") and provided public notice in a newspaper of general circulation of the availability of the DEIR for public review and comment and of the date and time of the City Planning Commission public hearing on the DEIR; this notice was mailed to the Department's list of persons requesting such notice.

c. Notices of availability of the DEIR and of the date and time of the public hearing were posted near the project site by Department staff on or about, March 25, 1985.

d. On March 22, 1985, copies of the DEIR were mailed or otherwise delivered to a list of persons requesting it, to those noted on the distribution list in the DEIR, to adjacent property owners, and to other government agencies, the latter both directly and through the State Clearinghouse.

e. Notice of completion was filed with the State Secretary of Resources via the State Clearinghouse on March 22, 1985.

f. The State Clearinghouse established a public review period from March 22, 1985 to May 6, 1985, and submitted comments from State agencies within that period.

2) The City Planning Commission held a duly advertised public hearing on said Draft Environmental Impact Report on April 25, 1985 at which opportunity was given for, and public comment received on, the DEIR.

3) The Department prepared responses to comments on environmental issues received at the public hearing and in writing during the 49-day public review period for the DEIR, prepared revisions to the text of the DEIR in response to comments received or based on additional information that became available during the public review period, and corrected errors in the DEIR. This material was presented in a "Draft Summary of Comments and Responses," published on July 19, 1985, was distributed to the Commission and to all parties who commented on the DEIR, and was available to others upon request at Department offices. Additional material was presented in an Addendum for Comments and Responses published on August 21, 1985 and distributed to the Commission, and was available to others upon request at Department offices.

4) A Final Environmental Impact Report has been prepared by the Department, based upon the Draft Environmental Impact Report, any consultations and comments received during the review process, any additional information that became available, and the Summary of Comments and Responses, all as required by law.

5) Project Environmental Impact Report files have been made available for review by the City Planning Commission and the public and these files are part of the record before the Commission.

6) On August 22, 1985, the Commission reviewed the Final Environmental Impact Report and found that the contents of said report and the procedures through which the Final Environmental Impact Report was prepared, publicized and reviewed comply with the provisions of the California Environmental Quality Act, the Guidelines of the Secretary for Resources and Chapter 31 of the San Francisco Administrative Code.

7) The project sponsor has indicated that the presently preferred alternative is that described in the Environmental Impact Report as the proposed project.

8) The City Planning Commission hereby does find that the Final Environmental Impact Report concerning 83.469E: University of San Francisco Health and Recreation Center and Cogeneration System is adequate, accurate and objective, and that the Summary of Comments and Responses contains no significant revisions to the Draft Environmental Impact Report, and hereby does CERTIFY THE COMPLETION of said Final Environmental Impact Report in compliance with the California Environmental Quality Act and the State Guidelines.

9) The Commission, in certifying the completion of said Final Environmental Impact Report, hereby does find that the project described in the Environmental Impact Report, and the project, as proposed, will have no significant effects on the environment.

CITY PLANNING COMMISSION

File No. 83.469E
Address: University of San Francisco
Motion No. 10406
Page Three

I hereby certify that the foregoing Motion was ADOPTED by the City Planning Commission at its regular meeting of August 22, 1985.

AYES: Commissioners Bierman, Karasick, Nakashima, Rosenblatt, Wright

NOES: None

ABSENT: None

ADOPTED: August 22, 1985

6852B

DEPARTMENT OF CITY PLANNING 450 McAllister St. - 5th Floor
(415)558-5260

NOTICE THAT AN
ENVIRONMENTAL IMPACT REPORT
IS DETERMINED TO BE REQUIRED

Date of this Notice: December 2, 1983

Lead Agency: City and County of San Francisco, Department of City Planning
450 McAllister St. - 5th Floor, San Francisco CA 94102

Agency Contact Person: Ginny Puddefoot Tel: (415) 558-5260

Project Title: 83.469E:
USF Cogeneration Facility

Project Sponsor: University of San Francisco

Project Contact Person: Ken Goss

Project Address: Southside of Fulton Street between Shrader and Cole Streets

Assessor's Block(s) and Lot(s): 1190/1

City and County: San Francisco

Project Description: Construction on USF main campus of 17,400 square foot, 26 foot high cogeneration facility producing steam and electricity; requiring conditional use authorization.

THIS PROJECT MAY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AND AN ENVIRONMENTAL IMPACT REPORT IS REQUIRED. This determination is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15081 (Determining Significant Effect), 15082 (Mandatory Findings of Significance) and 15084 (Decision to Prepare an EIR), and the following reasons, as documented in the Initial Evaluation (initial study) for the project, which is on file at the Department of City Planning:

See attached.

Deadline for Filing of an Appeal of this Determination to the City Planning Commission: December 12, 1983

An appeal requires 1) a letter specifying the grounds for the appeal, and 2) a $35.00 filing fee.

Alec S. Bash, Environmental Review Officer

University of San Francisco
Cogeneration Facility
Initial Study
83.469E

I. PROJECT DESCRIPTION

The University of San Francisco (USF), the project sponsor, proposes to construct a Cogeneration Facility producing steam and electricity. The proposed site is on the USF main campus, on the south side of the 2100 block of Fulton St., bordered to the west by Shrader St. and to the east by Cole St. (see Figure 1, p. 2). The project would cover about 17,400 sq. ft. of Lot 1, Assessor's Block 1190. This site is in an RH-3 (House, Three Family) zoning district and an 80-D Height and Bulk District. Undeveloped except for a 900 sq. ft. patio on the northwest corner, the site is on a slope east of Kendrick Hall Law School. The remainder of the project block is occupied by residences.

The proposed Cogeneration Facility would use natural gas fuel to cogenerate steam and electricity. This cogeneration system would replace the steam plant currently in use at USF. The steam produced (approximate capacity of 17,000 lb/hr, 125 psi steam and 14,000 lb/hr, 15 psi steam)[1] would be used for heating both in USF campus buildings and at St. Mary's Hospital and Medical Center. The electricity generated (9,500 kW maximum capacity) would be sold to PGandE; in return, USF would pay a more favorable rate for University electrical needs. The equipment, including turbine generators, boilers, and steam pumps, would be housed in a 60-foot wide, 120-foot long and 26-foot high, acoustically treated, concrete building, which would be set into the slope east of USF's Kendrick Hall (see Figures 2 and 3, pp. 3 and 4). The structure would be landscaped, including a number of new trees (see Figures 3 and 4, pp. 4 and 5). A pedestrian plaza would

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(text continues on page 6)

1. psi = Pounds per square inch.

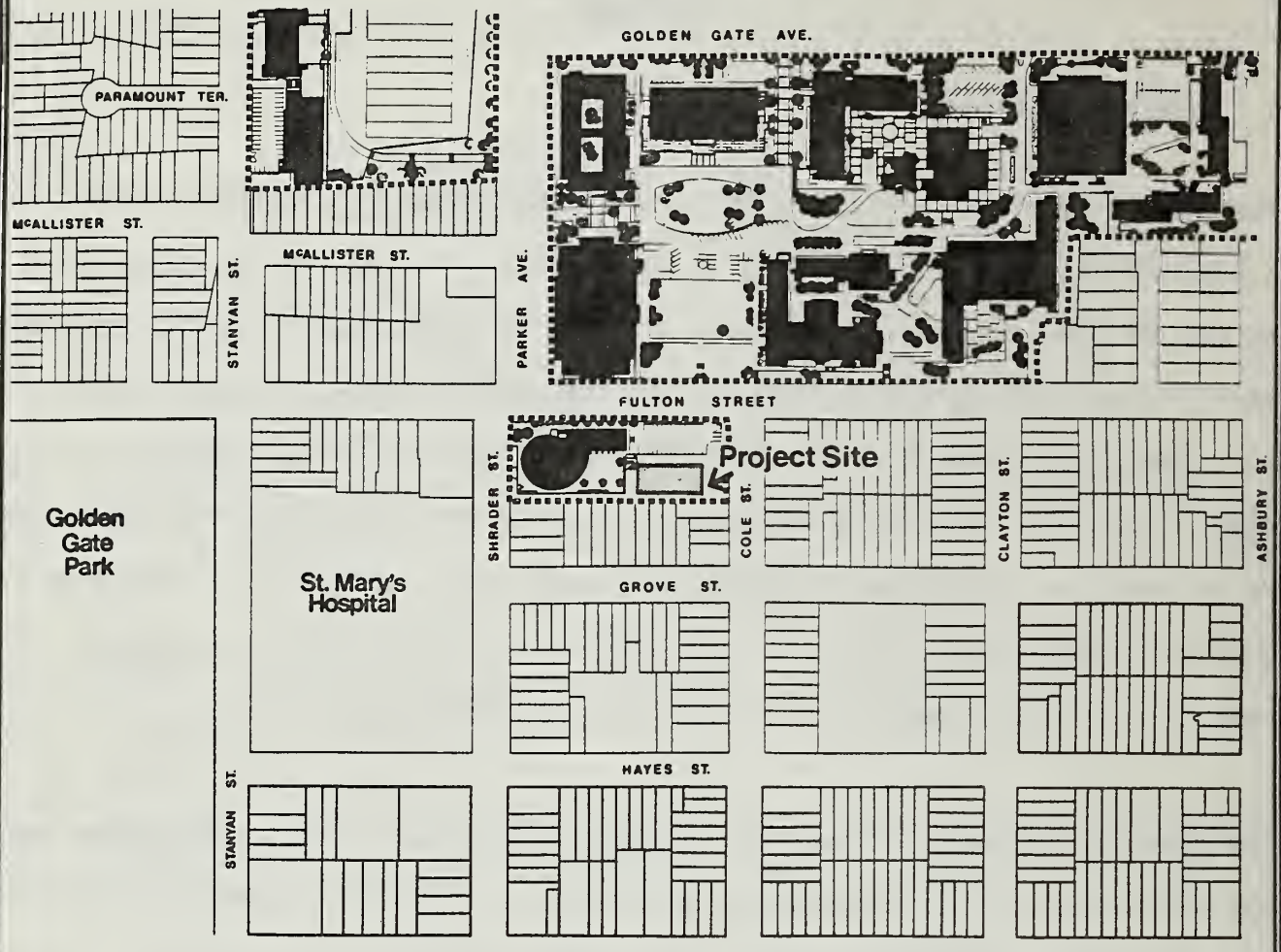

FIGURE 1

SCALE: 1″= 300′

PROJECT SITE

SITE LOCATION

N

USF COGENERATION FACILITY

SOURCE: Bendix Environmental Research, Inc., and Pflueger Architects

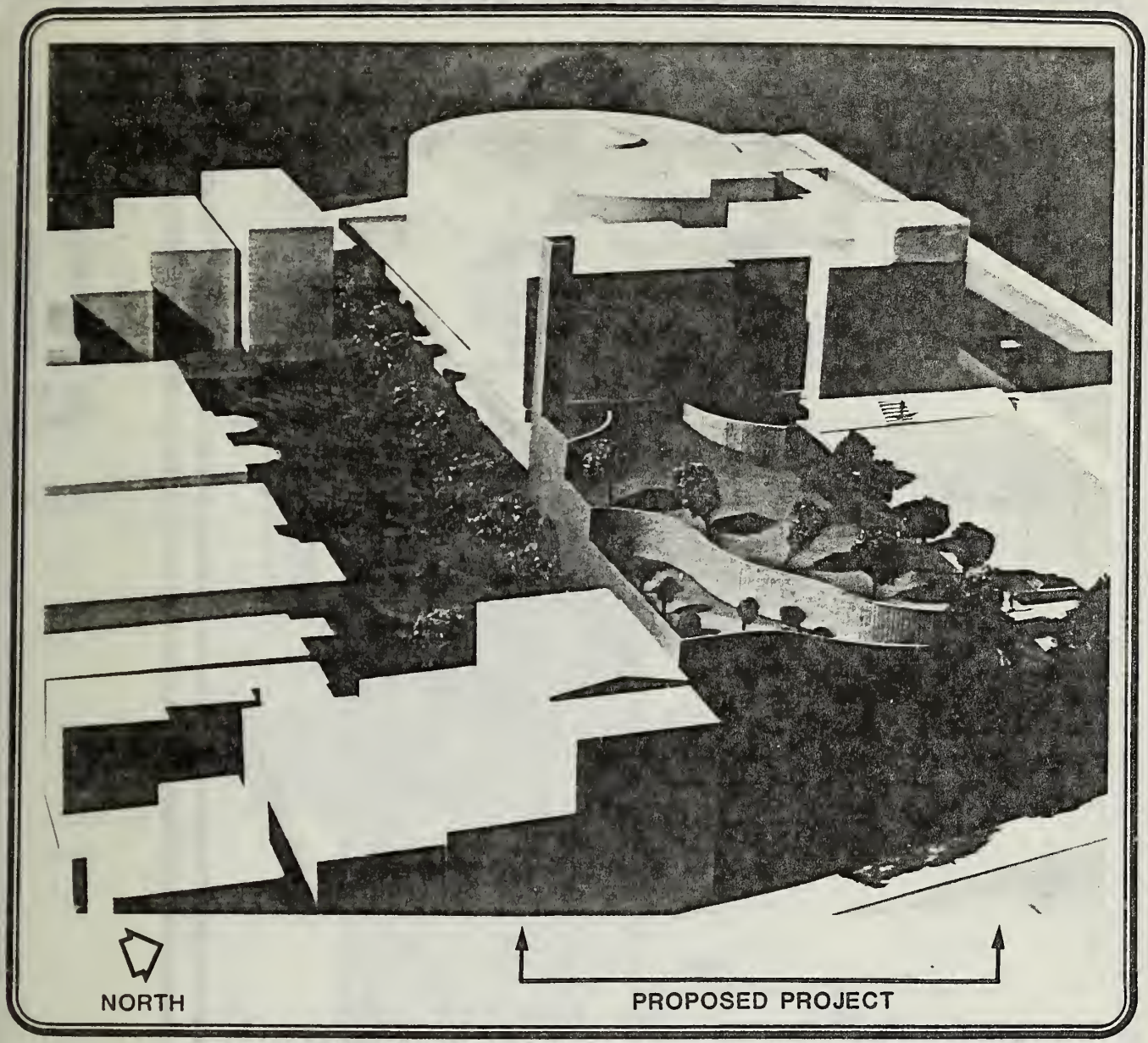

FIGURE 2

MODEL PHOTO

USF COGENERATION FACILITY

SOURCE: Bendix Environmental Research, Inc., and Pflueger Architects

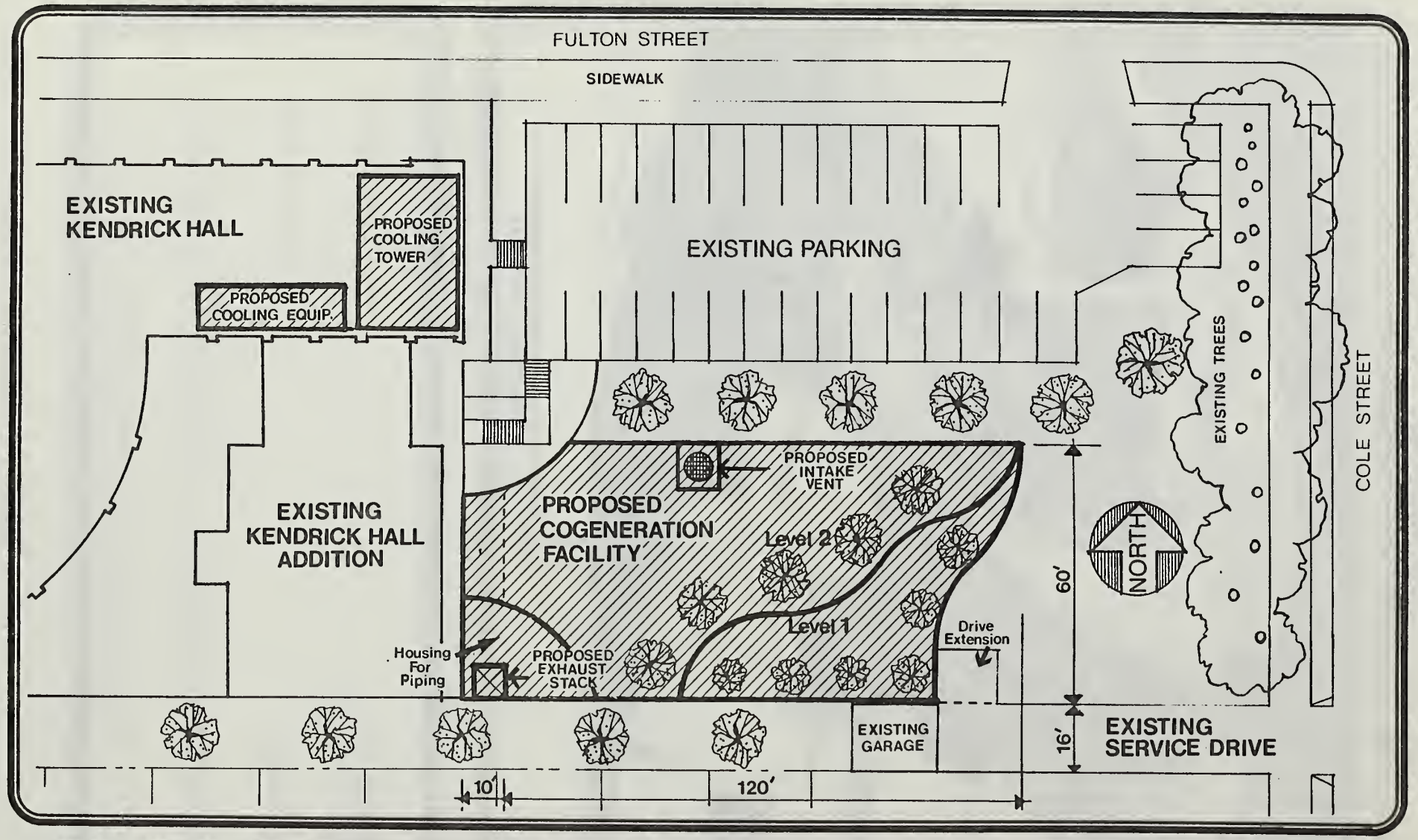

FIGURE 3

SITE PLAN

USF COGENERATION FACILITY

SOURCE: Bendix Environmental Research, Inc., and Pflueger Architects

SCALE: 1/32 in. to 1 ft.

PROPOSED TREES

PROPOSED PROJECT

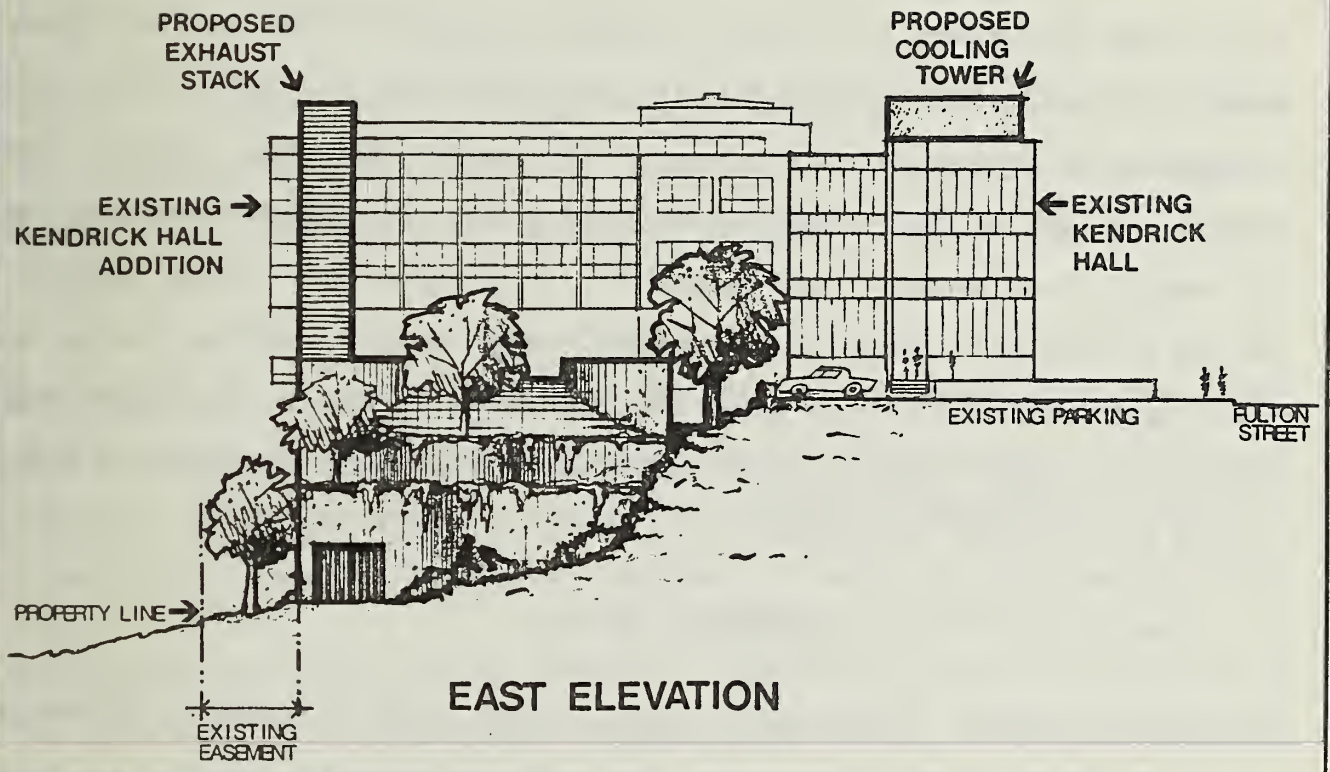

FIGURE 4

SCALE: 1/48" = 1'0"

EAST ELEVATION

— PROPOSED PROJECT OUTLINE

USF COGENERATION FACILITY

SOURCE: Bendix Environmental Research, Inc., and Pflueger Architects

be created on top of the upper level of the facility, which would be level with Fulton St. The cooling tower required by the facility would be located on top of the north end of Kendrick Hall. An existing service drive would be extended to connect the Cogeneration Facility to Cole Street.

At the time the University of San Francisco submitted its 1983 revised campus master plan to the San Francisco Planning Commission, both a windmill project and a cogeneration project were included in USF's energy management program. The windmill project has been deleted because preliminary environmental investigation has revealed that windmill construction at the proposed site is not feasible. Because of on-going interest in alternate energy sources, USF may decide to investigate the feasibility of other possible windmill sites in the future. Any new windmill project resulting from such investigation would be subject to independent environmental evaluation.

II. SUMMARY OF POTENTIAL ENVIRONMENTAL EFFECTS

The proposed project is examined in this Initial Study in order to determine potential effects on the environment. The following potential impacts have been identified and will be addressed in an Environmental Impact Report (EIR) to be prepared on the project.

- Relationship of the project to energy consumption and production on-site, and to regional power demands;
- Stack emissions generated by the project and their effects on sensitive receptors;
- Noise and vibration impacts during project construction and operation;
- Relationship of the project to, and effects on, land uses in the project vicinity;

- Views of the project;
- Fire hazards and other safety risks as a result of the project;
- Relationship of the proposed facility to the City Planning Code and Master Plan; and
- Impacts of project financing on USF.

The following potential environmental impacts were determined either to be insignificant or to have been mitigated through measures included in the project. These items require no further environmental analysis and will not be addressed in the EIR:

Population: The project would provide four full-time jobs and an unknown number of jobs during the approximately nine-month construction period. The project would not induce substantial growth or concentration of population, displace a large number of people, or create a substantial demand for additional housing.

Transportation: There would be temporary transportation impacts associated with the construction of the project. Transportation impacts of project operation would include employee trips and occasional service deliveries. These impacts would not change present circulation patterns, require expansion of streets or parking facilities in the project vicinity, or produce noticeable changes in traffic levels.

Utilities/public services: The project would increase demand for utilities and public services but would not require additional service facilities.

Biology: Biotic impacts associated with the removal of trees prior to project construction would be reduced by the inclusion of a greater number of trees in the project landscaping. No other biotic impacts resulting from the project are expected.

Geology: The project would not expose people or structures to geologic hazards other than those typical of any San Francisco site due to proximity of the San Andreas Fault. The project sponsor would follow the recommendations of a site-specific soil investigation by a California licensed engineer during construction to minimize possible excavation, construction and earthquake hazards.

Water quality: The project would use water for steam condensation and boiler feedwater from the City water supply. Project water discharge would be fed directly into the sewers. Project water use would not contaminate public water or groundwater supplies or consume a quantity of water affecting San Francisco water supply or management plans. Changes in water runoff from the site would not result in flooding or erosion problems.

Cultural factors: An existing patio would be replaced with a larger public plaza on the roof of a new building. The project is not expected to affect archeological or paleontological sites because of previous excavation of much of the site. A mitigation measure has been included in the event that archeological resources are encountered.

A. COMPATIBILITY WITH EXISTING ZONING AND PLANS.

Could the project:	YES	NO	DISCUSSED
1. Require a variance, special authorization, or change to the City Planning Code or Zoning Map?	X		X
*2. Conflict with the Comprehensive Plan of the City and County of San Francisco?		X	
*3. Conflict with any other adopted environmental plans and goals of the City or Region?		X	

The proposed project would require Conditional Use authorization from the City Planning Commission because the project site is in a Residential District.

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* Derived from State EIR Guidelines, Appendix G, normally significant effect.

Zoning and the relationship of the project to policies of the City's Comprehensive Plan will be discussed in the EIR.

B. ENVIRONMENTAL EFFECTS. Could the project:

	YES	NO	DISCUSSED
1. Land Use			
*a. Disrupt or divide the physical arrangement of an established community?	___	X	___
b. Have any substantial impact upon the existing character of the vicinity?	X	___	X

Surrounding land uses generally consist of two- and three-family residences and the USF campus. The site is two blocks east of Golden Gate Park and one block east of St. Mary's Hospital and Medical Center (see Figure 1, p. 2). The relationship of the proposed project, an energy-producing plant, to surrounding land uses will be discussed in the EIR.

2. Visual Quality			
*a. Have a substantial, demonstrable negative aesthetic effect?	X	___	X
b. Substantially degrade or obstruct any scenic view or vista now observed from public areas?	___	X	___
c. Generate obtrusive light or glare substantially impacting other properties?	___	X	X

The project involves the construction of a building on a currently vacant lot. Visual impacts of the proposed structure will be discussed in the EIR.

As the building would be windowless and set into a slope, no light from within the facility would be expected to result in visible light off-site. A safety light, which would be shielded to minimize visual impact, would be installed outside of the door on the east side of the building. There is currently one

streetlight on Cole St. within 90 ft. of this door; visual impacts of the safety light would not be expected to be obtrusive off-site. To eliminate potential glare from the proposed facility, the structure would be constructed of textured concrete, would be painted a neutral color, and would not have windows. This topic requires no further analysis and will not be discussed in the EIR.

	YES	NO	DISCUSSED
3. Population			
*a. Induce substantial growth or concentration of population?	___	X	X
*b. Displace a large number of people (involving either housing or employment)?	___	X	X
c. Create a substantial demand for additional housing in San Francisco, or substantially reduce the housing supply?	___	X	X

Four new employees would be required for maintenance and operation of the project. No housing or job displacement would occur. The project would not be expected to attract additional residents or students to USF or the campus environs since the project would not create housing or jobs; energy supply is not currently a factor in San Francisco's population size. The project thus would not create demand for additional housing in San Francisco or result in measurable effects on the housing supply. This topic requires no further analysis and will not be discussed in the EIR.

4. Transportation/Circulation			
*a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system?	___	X	X
b. Interfere with existing transportation systems, causing substantial alterations to circulation patterns or major traffic hazards?	___	X	X

	YES	NO	DISCUSSED
c. Cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity?	___	X	___
d. Cause a substantial increase in parking demand which cannot be accommodated by existing parking facilities?	___	X	___

During construction, trucks would make deliveries to the project and construction workers would travel to and from the site. This could temporarily result in an increase in surface use of streets in the project vicinity. Construction would not be expected to result in a substantial change in traffic patterns or create new demands for parking or streets. No disruption of traffic flow due to construction vehicles would be expected.

After completion of the project, four new employees would be hired by USF to operate and maintain the new facilities. These workers would generate a maximum of 20 new person trip-ends per day, of which 8 would be external to the campus. Occasional service deliveries would be made via the service drive. These trips would not be expected to be noticeable. No further discussion of these items is necessary and they will not be addressed in the EIR.

5. Noise

*a. Increase substantially the ambient noise levels for adjoining areas?	X	___	X
b. Violate Title 25 Noise Insulation Standards, if applicable?	___	X	___
c. Be substantially impacted by existing noise levels?	___	X	___

During construction of the project, noise levels would be temporarily elevated in the vicinity. In operation, the Cogeneration Facility could raise noise levels

in the project vicinity. Noise and vibration impacts of the project during construction and operation will be discussed in the EIR.

	YES	NO	DISCUSSED
6. Air Quality/Climate			
*a. Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation?	X	___	___
*b. Expose sensitive receptors to substantial pollutant concentrations?	X	___	___
c. Permeate its vicinity with objectionable odors?	___	X	X
d. Alter wind, moisture or temperature (including sun shading effects) so as to substantially affect public areas, or change the climate either in the community or region?	___	X	X

The Cogeneration Facility would burn natural gas, resulting in emissions of nitrogen oxides (NO_x), carbon monoxide (CO) and lesser amounts of other air pollutants. The relationship of the project to air quality standards, and projected emission levels and their effects on sensitive receptors will be discussed in the EIR.

Natural gas fuel would be supplied by underground pipes and standby liquid fuel would be stored underground with no accompanying odors. Exhaust from the proposed facility, like the exhaust from the current boiler, would not have a noticeable odor. This item requires no further analysis and will not be discussed in the EIR.

As the proposed facility would be set into an existing hillside, the structure would not alter wind, moisture or temperature conditions in the project vicinity. This topic requires no further analysis and will not be addressed in the EIR.

	YES	NO	DISCUSSED
7. Utilities/Public Services			
*a. Breach published national, state or local standards relating to solid waste or litter control?	___	X	___
*b. Extend a sewer trunk line with capacity to serve new development?	___	X	___
c. Substantially increase demand for schools, recreation or other public facilities?	___	X	___
d. Require major expansion of power, water, or communications facilities?	___	X	X

The Cogeneration Facility would increase demand for City services (water and sewage treatment). Water consumption would be about 70 gallons per minute (gpm), which the Water Department can furnish (see letter of 16 September 1982 on file and available for public review at the Office of Environmental Review, Department of City Planning, 450 McAllister St., San Francisco); this water would supplement recycled water use in project boilers and the cooling tower. An increase of approximately 8 gpm flow to sewers from cooling tower blowdown[1] water would occur. The Department of Public Works has confirmed (see letter of 3 August 1983 on file and available for public review at the Office of Environmental Review, Department of City Planning) that no expansion of facilities would be necessary, that the existing sewer main could accept this waste stream and that the sewage treatment could process this flow. This item requires no further discussion and will not be adressed in the EIR.

8. Biology			
*a. Substantially affect a rare or endangered species of animal or plant or the habitat of the species?	___	X	___

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1. blowdown = relatively small amounts of water, containing accumulated suspended and dissolved solids, removed from a cooling tower.

	YES	NO	DISCUSSED
*b. Substantially diminish habitat for fish, wildlife or plants, or interfere substantially with the movement of any resident or migratory fish or wildlife species?	___	X	X
c. Require removal of substantial numbers of mature, scenic trees?	___	X	X

The surface of the project site consists of earth excavated from the construction of the Kendrick Hall Addition. Vegetation is typical of vacant lots in the San Francisco area and consists primarily of grasses and other volunteer[1] herbaceous plants. Trees on the site which would be removed for project construction include: four volunteer cypress over four inches in trunk diameter and between 20 and 25 feet tall; two smaller volunteer cypress; several volunteer juniper and broom trees, and one silktassel tree, all less than four inches in trunk diameter and under six feet tall.[2] A row of 70 to 75 ft. tall cypress on the eastern edge of the site along Cole Street would remain standing. A number of trees, 20-30 ft. in height, would be planted along the south face of the Cogeneration Facility and Kendrick Hall Addition and on the north side of the Facility. Several trees between 8 and 15 ft. tall would be planted on the roof of the Facility as part of the plaza landscaping. This would reduce the impact of cutting trees presently on the site. No further analysis of this item is necessary and it will not be discussed in the EIR.

The animals presently living on the project site are those typical of urban vacant lots. Mammals may include various rodents such as field mice, gophers, wood rats and squirrels. Due to the proximity of Golden Gate Park, any animals

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1. volunteer = not deliberately planted.
2. All information on flora and fauna taken from Booker Holton, Biologist's Report on USF Project Sites, Booker Holton & Associates, August 1983, available for public review at the Office of Environmental Review, Department of City Planning, 450 McAllister St., San Francisco.

found in the park may occur at the site occasionally. These animals may include skunk, raccoon, feral cat and dog. The construction of the Cogeneration Facility would eliminate most of the habitat for the mammals mentioned above. The Facility would not be expected to impact bird populations because the planting of trees proposed for the site would provide habitat for birds in the area; temporary impacts on bird habitat would occur during construction. As disturbed animals could move to other portions of the USF campus or to nearby residential yards during construction, the impact on animals would not be significant. This item requires no further analysis and will not be addressed in the EIR.

	YES	NO	DISCUSSED
9. Geology			
*a. Expose people or structures to major geologic hazards (slides, subsidence, erosion and liquefaction)?	___	X	X
*b. Change substantially the topography or any unique geologic or physical features of the site?	___	X	___

Geologic evaluation of the project area indicates that movement on the San Andreas Fault of the magnitude of the 1906 earthquake (8.3 on the Richter scale) would probably result in strong motion at the Cogeneration Facility site and slight damage to USF campus buildings.[1] Approximately 100,000 cu. ft. of material would have to be excavated for construction of the project. In accordance with Bureau of Building Inspection requirements, the project sponsor would obtain a site-specific soils report from a California licensed soils engineer and has agreed to construct the project in accordance with the recommendations of this report with regard to foundation and structure. This topic requires no further analysis and will not be addressed in the EIR.

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1. URS/John A. Blume & Associates, San Francisco Seismic Safety Investigation, June, 1974.
   Slight damage = some cracked and damaged walls, partitions, and stairways; broken chimneys; structural damage generally minor, if any.

	YES	NO	DISCUSSED
10. Water			
*a. Substantially degrade water quality, or contaminate a public water supply?	___	X	X
*b. Substantially degrade or deplete ground water resources, or interfere substantially with ground water recharge?	___	X	___
*c. Cause substantial flooding, erosion or siltation?	___	X	X

The project would use water for steam condensation and to feed boilers. All discharge of water from the project cooling tower would be fed directly into the sewer (see Utilities/Public Services, p. 13). This use and disposal of water would not contaminate or degrade public water or groundwater supplies. The project would not substantially affect water runoff to cause flooding or erosion problems. This item requires no additional analysis and will not be addressed in the EIR.

	YES	NO	DISCUSSED
11. Energy/Natural Resources			
*a. Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	X	___	X
b. Have a substantial effect on the potential use, extraction, or depletion of a natural resource?	X	___	X

The net increase in natural gas fuel use at the Cogeneration Facility would average about 630 therms/hr, with total natural gas requirements of approximately 21,000 therms/day or 7,600,000 therms/yr.[1] Electricity requirements for project operation would total about 2,100,000 kWh annually;[2] the project would produce

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1. therm = 100,000 Btu; Btu (British Thermal Unit) = a standard for measuring heat, about equal to that from burning one standard kitchen match. Technically, it is the quantity of heat required to raise the temperature of one pound of water 1° Fahrenheit (251.98 calories) at Sea Level.
2. kilowatthour (kWh) = the most common unit for measuring electric energy, the kWh is the quantity of electricity delivered in one hour at the rate of one kilowatt (1,000 watts). Ten 100-watt light bulbs burning one hour use one kilowatthour.

approximately 75,000,000 kWh of electricity annually. The relationship of the project to energy consumption and production on-site will be discussed in the EIR. The Cogeneration Facility could have a substantial effect on the potential extraction and depletion of fossil fuels in that the project would conserve energy by using fossil fuel (natural gas) more efficiently than usual heating and power generation methods, reducing regional demand for fossil fuels. The relationship of the project to regional energy demands will be discussed in the EIR.

	YES	NO	DISCUSSED
12. Hazards			
*a. Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the area affected?	X		X
*b. Interfere with emergency response plans or emergency evacuation plans?		X	
c. Create a potentially substantial fire hazard?	X		X

Natural gas fuel, which is a fire hazard and explosive, would be used at the proposed facility. Standby diesel fuel (also a fire hazard and explosive) would be stored, as it is at the existing boiler plant. Water treatment chemicals, including sulfuric acid and sodium hydroxide, would be used. Standard safety devices and safe handling methods would be in effect which would meet applicable safety regulations and minimize danger of fire or hazard to people. Fire hazards and other health and safety issues will be discussed in the EIR.

13. Cultural			
*a. Disrupt or adversely affect a prehistoric or historic archeological site or a property of historic or cultural significance to a community or ethnic or social group; or a paleontological site except as a part of a scientific study?		X	X

	YES	NO	DISCUSSED
*b. Conflict with established recreational, educational, religious or scientific uses of the area?	___	X	X
c. Conflict with preservation of any buildings of City landmark quality?	___	X	___

An existing patio at the Cogeneration Facility site is used for student recreation. This area would be temporarily unavailable during construction. Upon completion of the facility, a new plaza (larger than the existing patio) on top of the facility would be available for recreational use. As the surface of the site is composed of earth excavated during the construction of Kendrick Hall Addition, it is unlikely that archeological resources are present on the site. However, if any archeological resources are found on the site during construction, the project sponsor has agreed to the mitigation measure below. No further discussion of this topic is required and it will not be addressed in the EIR.

C. OTHER

Require approval of permits from City Departments other than DCP or BBI; or from Regional, State or Federal Agencies?	X	___	X

Permits would be required from the Federal Energy Regulatory Commission (FERC) (received 22 June 1983), California Public Utilities Commission (PUC), and Bay Area Air Quality Management District (BAAQMD). Requirements and scope of permits will be discussed in the EIR.

D. MITIGATION MEASURES	YES	NO	N/A	DISCUSSED
1. If any significant effects have been identified, are there ways to mitigate them?	X	___	___	X
2. Are all mitigation measures identified above included in the project?	X	___	___	X

Mitigation measures currently proposed as part of the project are listed below. Other mitigation measures may be identified during subsequent environmental review and will be included in the EIR.

Should evidence of historic or prehistoric artifacts be uncovered at the site during construction, the project sponsor would agree to: (1) require the project contractor to notify the Environmental Review Officer and the President of the Landmarks Preservation Advisory Board; (2) require that the contractor suspend construction in the area of the discovery for a maximum of four weeks to permit review of the find and, if appropriate, retrieval of artifacts; (3) employ an archeologist or other expert acceptable to the Environmental Review Officer to help the Office of Environmental Review determine the significance of the find and identify feasible measures, if any, to preserve or recover artifacts; and (4) implement any feasible mitigation measures identified by the archeologic consultant.

E. MANDATORY FINDINGS OF SIGNIFICANCE	YES	NO	DISCUSSED
*1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major period of California history or prehistory?	___	X	___
*2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	___	X	___
*3. Does the project have possible environmental effects which are individually limited, but cumulatively considerable? (Analyze in the light of past projects, other current projects, and probable future projects.)	___	X	___

	YES	NO	DISCUSSED
*4. Would the project cause substantial adverse effects on human beings, either directly or indirectly?	___	X	___
*5. Is there a serious public controversy concerning the possible environmental effect of the project?	X	___	X

Many people have expressed their concerns about the potential impacts of this project at community meetings held by USF and at the Institutional Master Plan hearing before the Planning Commission. Planning Commissioners expressed concern at this hearing regarding the potential impacts of the proposed project. There are community concerns that: 1) cumulative project impacts would disrupt the quality of the residential neighborhood; 2) air pollution and safety impacts would adversely affect human health; 3) the project may conserve energy at the expense of unacceptable land use impacts due to an industrial use in a residential area; and 4) significant noise impacts may result from project implementation. These topics will be addressed in the EIR.

F. FINDINGS ON THE BASIS OF THIS INITIAL STUDY:

_____ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Department of City Planning.

_____ I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because the mitigation measures, numbers _____, in the discussion have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared.

__X__ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Alec S. Bash
Environmental Review Officer

for

Dean L. Macris
Director of Planning

DATE: December 2, 1983

APPENDIX B: AIR QUALITY

San Francisco Air Pollutant Summary

Pollutant	Standard	1980	1981	1982
OZONE (O_3)				
Maximum (1-hr. avg. ppm[1])	0.12[2]	0.09	0.07	0.08
Days standard exceeded		0	0	0
CARBON MONOXIDE (CO)				
Maximum (1-hr. avg. ppm)	35[2], 20[3]	10.0	8.0	12.0
Maximum (8-hr. avg. ppm)	9[2]	7.5	11.2[4]	9.1/14.5[4]
Days 8-hr. standard exceeded		0	1	1
NITROGEN DIOXIDE (NO_2)				
Maximum (annual mean ppm)	0.05[2]	0.029	0.027	0.027
Maximum (1-hr. avg. ppm)	0.25[3]	0.17	0.11	0.13
Days 1-hr. standard exceeded		0	0	0
SULFUR DIOXIDE (SO_2)				
Maximum (24-hr. avg. ppm) (with concurrent TSP or ozone exceedance)	0.05[3]	0.018	0.016	0.012
Days standard exceeded		0	0	0
TOTAL SUSPENDED PARTICULATES (TSP)				
Mean[5]	60[2], 30[3]	52	56	57
Maximum (24-hr. avg)[6]	150[2], 100[3]	173	103	126
Days Federal 24-hr. Standard exceeded		1	0	0
Days State 24-hr. Standard exceeded		6	1	3

1. ppm = parts per million
2. Federal Standard (for pollutants with a primary and secondary standard, only the secondary standard).
3. California State Standard (State Standard for TSP is 50 micrograms per cubic meter as of 1983).
4. At street level
5. Annual geometric mean in micrograms per cubic meter
6. In micrograms per cubic meter.

SOURCE: BAAQMD, Air Pollution by Station and Contaminant: 1980, 1981, 1982; Sally Friedman, BAAQMD Planner, 23 September 1983 telephone conversation; California Air Quality Data: Summary of Air Quality: Gaseous and Particulate Pollutants: 1980, 1981, 1982; and Bendix Environmental Research, Inc.

APPENDIX C

Fundamental Concepts of Environmental Noise

This section provides background information to aid in understanding the technical aspects of this report.

Three dimensions of environmental noise are important in determining subjective response. These are:

a. the intensity or level of the sound;
b. the frequency spectrum of the sound;
c. the time-varying character of the sound.

Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing.

The "frequency" of a sound refers to the number of complete pressure fluctuations per second in the sound. The unit of measurement is the cycle per second (cps) or Hertz (Hz). Most of the sounds which we hear in the environment do not consist of a single frequency, but of a broad band of frequencies, differing in level. The quantitative expression of the frequency and level content of a sound is its sound spectrum. A sound spectrum for engineering purposes is typically described in terms of octave bands which separate the audible frequency range (for human beings, from about 20 to 20,000 Hz) into ten segments.

Many rating methods have been devised to permit comparisons of sounds having quite different spectra. Fortunately, the simplest method correlates with human response practically as well as the more complex methods. This method consists of evaluating all of the frequencies of a sound in accordance with a weighting that progressively and severely deemphasizes the importance of frequency components below 1000 Hz, with mild deemphasis above 5000 Hz. This type of frequency weighting reflects the fact that human hearing is less sensitive at low frequencies and extreme high frequencies than in the frequency midrange.

The weighting curve described above is called "A" weighting, and the level so measured is called the "A-weighted sound level", or simply "A-level".

The A-level in decibels is expressed "dBA"; the appended letter "A" is a reminder of the particular kind of weighting used for the measurement. In practice, the A-level of a sound source is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. All U.S. and international standard sound level meters include such a filter. Typical A-levels measured in the environment and in industry are shown in Figure A-1.

Although the A-level may adequately describe environmental noise at any instant in time, the fact is that the community noise level varies continuously. Most environmental noise includes a conglomeration of distant noise sources which creates a relatively steady background noise in which no particular source is identifiable. These distant sources may include traffic, wind in trees, industrial activities, etc. These noise sources are relatively constant from moment to moment, but vary slowly from hour to hour as natural forces change or as human activity follows

its daily cycle. Superimposed on this slowly varying background is a succession of identifiable noisy events of brief duration. These may include nearby activities or single vehicle passages, aircraft flyovers, etc., which cause the environmental noise level to vary from instant to instant.

To describe the time-varying character of environmental noise, the statistical noise descriptors L10, L50, and L90 are commonly used. The L10 is the A-weighted sound level equaled or exceeded during 10 percent of a stated time period. The L10 is considered a good measure of the "average peak" noise. The L50 is the A-weighted sound level that is equaled or exceeded 50 percent of a stated time period. The L50 represents the median sound level. The L90 is the A-weighted sound level equaled or exceeded during 90 percent of a stated time period. The L90 is used to describe the background noise.

As it is often cumbersome to describe the noise environment with these statistical descriptors, a single number descriptor called the Leq is also widely used. The Leq is defined as the equivalent steady-state sound level which in a stated period of time would contain the same acoustic energy as the time-varying sound level during the same time period. The Leq is particularly useful in describing the subjective change in an environment where the source of noise remains the same but there is change in the level of activity. Widening roads and/or increasing traffic are examples of this kind of situation.

In determining the daily measure of environmental noise, it is important to account for the difference in response of people to daytime and nighttime noises.

During the nighttime, exterior background noises are generally lower than the daytime levels. However most household noise also decreases at night and exterior noises become very noticeable. Further most people are sleeping at night and are very sensitive to noise intrusion.

To account for human sensitivity to nighttime noise levels a descriptor, Ldn, (day-night equivalent sound level) was developed. The Ldn divides the 24-hour day into the daytime of 7 am to 10 pm and the nighttime of 10 pm to 7 am. The nighttime noise level is weighted 10 dB higher than the daytime noise level. The Ldn, then, is the A-weighted average sound level in decibels during a 24-hour period with 10 dBA added to the hourly Leqs during the nighttime. For highway noise environments the Leq during the peak traffic hour is approximately equal to the Ldn.

The effects of noise on people can be listed in three general categories:

1) subjective effects of annoyance, nuisance, dissatisfaction;
2) interference with activities such as speech, sleep, learning;
3) physiological effects such as startle, hearing loss.

The sound levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Unfortunately, there is as yet no completely satisfactory measure of the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance, and habituation to noise over differing individual past experiences with noise.

Thus, an important parameter in determining a person's subjective reaction to a new noise is the existing noise environment to which one has adapted: the so-called "ambient" noise. "Ambient" is defined as "the all-encompassing noise associated with a given environment, being a composite of sounds from many sources, near and far". In general, the more a new noise exceeds the previously existing ambient, the less acceptable the new noise will be judged by the hearers.

With regard to increases in noise level, knowledge of the following relationships will be helpful in understanding the quantitative sections of this report:

a) Except in carefully controlled laboratory experiments, a change of only 1 dBA cannot be perceived.

b) Outside of the laboratory, a 3-dBA change is considered a just-noticeable difference.

c) A change in level of at least 5 dBA is required before any noticeable change in community response would be expected.

d) A 10-dBA change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse change in community response.

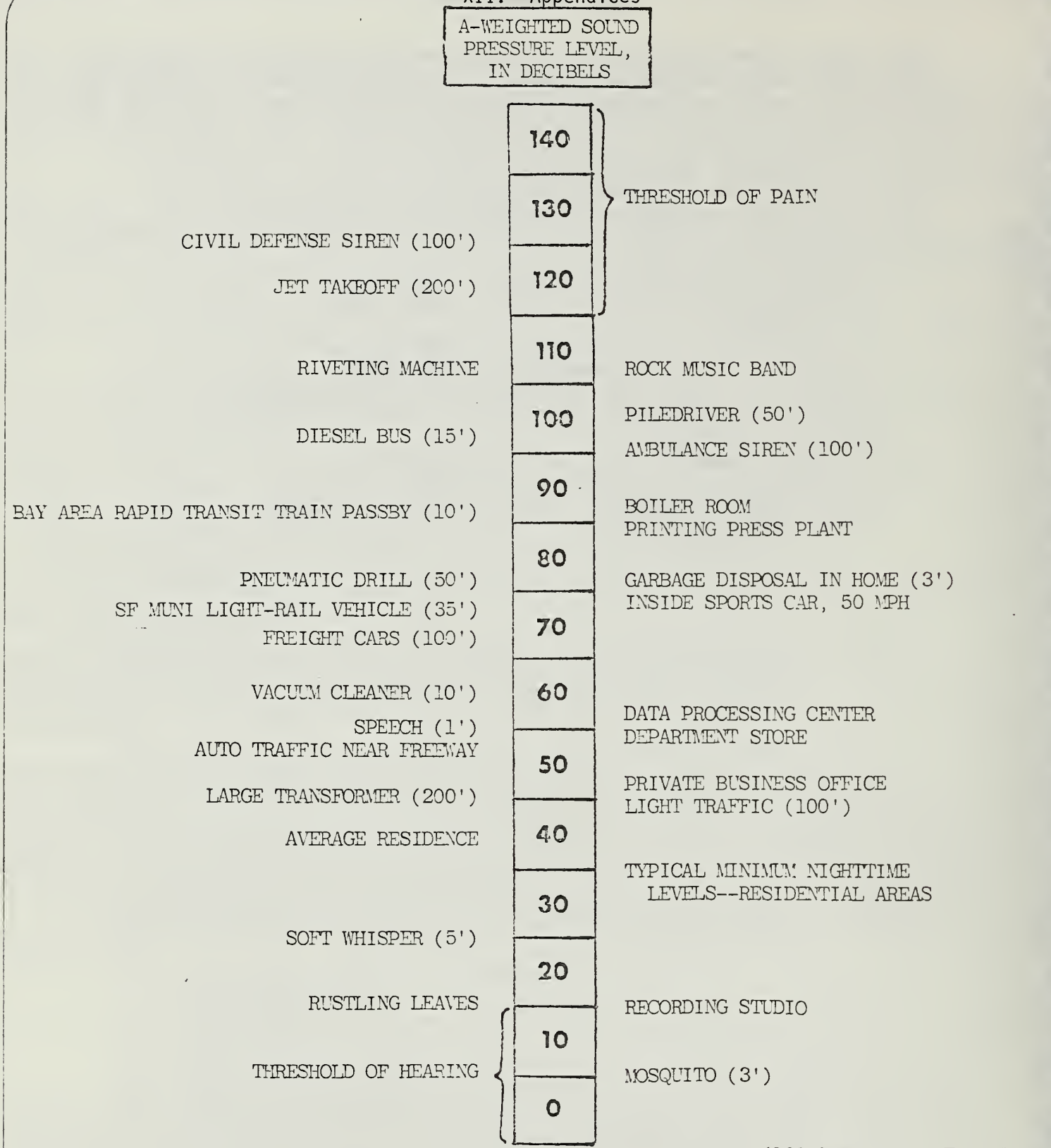

FIGURE A-1: TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

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APPENDIX D: COGENERATION SYSTEMS

Cogeneration is the production of both thermal (heat) and electrical energy by the combustion of a single fuel. Cogeneration has been used for decades as a means of producing energy; as early as the 1880's cogeneration was used throughout Europe and the United States.[1] With higher fuel costs and increased awareness of limited fossil fuel reserves, the greater energy efficiency of cogeneration, as compared to separate generation of electricity and heat, represents a viable and tested means of reducing fossil fuel consumption without decreasing energy production. Cogeneration can achieve an efficiency[2] greater than the 35% typical of electrical generation by utilities; it is estimated that the efficiency of the proposed USF Cogeneration Facility would be about 57%.

Both the City of San Francisco and the State of California have advocated cogeneration. The City of San Francisco, in Policy 3 of the Energy Element of the San Francisco Comprehensive Plan, states that, "cogeneration systems might provide an attractive investment for facilities such as schools and hospitals that have large space heating needs."[3] The California Legislature and the California Energy Commission (CEC) have established cogeneration as a preferred electricity and heat generation method and, in 1981, California

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1. Office of Technology Assessment, Industrial and Commercial Cogeneration: Summary, OTA-E-193, February 1983, p. 6, available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister St.
2. efficiency = the ratio of useful energy provided by a system to the energy supplied to it.
3. City of San Francisco, Comprehensive Plan: Energy Element, adopted June 1982, p. 14.

adopted a Blueprint for Cogeneration establishing as a goal the development of cogeneration projects producing a total of 400 mW[4] at California state facilities.[5] The CEC states that "each megawatt of electricity produced by cogeneration saves at least 1,000 barrels of oil a year, thereby reducing the need to import supplies."[5] Cogeneration also has advantages over other alternative energy sources in that the efficiency of cogeneration has been tested and demonstrated on a relatively large scale.[5]

There are 109 operating cogeneration facilities in California.[6] Twenty-six projects are under construction and an additional 236 projects are in either the permit or the planning stage. Of these 371 proposed and operating plants, 40 (11%) are at educational institutions and 47 (13%) are located in the nine-county San Francisco Bay Area (see Tables 4 and 5, pp. A-30 and A-31). Proposed cogeneration facilities at Bay Area educational institutions include projects at San Francisco State University (under construction), San Jose State University, Stanford University, the University of California at San Francisco, and the University of California at Berkeley.

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4. mW = megawatt = one million watts. Watt = the basic unit of electric power, equal to about 1/750 of one horsepower.
5. A. Gandara and S. Park, "Municipal Cogeneration," in California Energy Commission, Cogeneration in Municipalities: Proceedings from Workshops for Local Governments and Municipal Utilities, January 1982, pp 8-9.
6. California Energy Commission, Cogeneration Project Tracking System: Report, 1 March 1983.

Table 4. Cogeneration Facilities at Educational Institutions in California*

Project Name	Location	Service Date	Capacity (mW)	Status
Proposed Project	San Francisco	1984-85	9.0	In permit process
CSU Chico	Chico	1984-85	6.7	Feasibility study completed
CSU Fresno	Fresno	1984-87	9.4	Feasibility study completed
CSU San Diego	San Diego	1984	0.3	Under construction
CSU San Diego	San Diego	1984-85	2.6	Advanced planning
CSU San Francisco	San Francisco	1984-87	0.8	Feasibility study completed
CSU San Jose	San Jose	1984	5.0	Feasibility study completed**
Cal Tech	Pasadena	In service	1.0	In service
Chaffey High School	San Bernardino	In service	0.1	In service
Harvey Mudd College	Claremont	In service	0.1	In service
Loma Linda Univ.	Loma Linda	In service	2.4	In service
Stanford Univ.	Stanford	1985	45.7	In permit process
UC Berkeley	Berkeley	1984-87	20.0 - 32.0	Feasibility study completed**
UC Davis	Davis	In service	3.5	In service
UC Santa Cruz	Santa Cruz	1984-87	2.4	Feasibility study completed**
UC San Francisco	San Francisco	1987	1.6	Advanced planning

* Selected from a total of 40 cogeneration projects at educational institutions. All projects listed use natural gas fuel.
** Request For Proposal (RFP) for third party financing has been released.
Source: California Energy Commission, Cogeneration Project Tracking System: Report, 1 March 1983 and Bendix Environmental Research, Inc.

Table 5. Cogeneration Facilities in the San Francisco Bay Area*

Project Name	Location	Service Date	Capacity (mW)	Status
Proposed Project (USF)	San Francisco	1984-85	9.0	In permit process
C & H Sugar	Crockett	1957	10.0	In service
Caterpillar Tractor	San Leandro	1982	2.5	In service
Crown Zellerbach	Antioch	1982	46.5	In service
Dow Chemical	Pittsburg	1977	55.0	In service
Fairfield/Anhauser Bush	Fairfield	1984	15.0	Advanced planning
Fairfield Civic Center	Fairfield	1984	0.8	Equipment RFP released
IBM	San Jose	1984-85	49.5	In permit process
Napa State Hospital	Napa	1984	1.6	Under construction
Oakland Airport	Oakland	Unknown	0.7	Advanced planning
Oakland City Center	Oakland	Unknown	38.0	Advanced planning
Paul Masson Winery	Saratoga	1981	0.3	In service
Pfizer Corporation	Emeryville	1984	2.7	Feasibility study completed
City of Santa Clara	Santa Clara	1980	5.8	In service

* Selected from a total of 47 cogeneration projects in the San Francisco Bay Area. All projects listed use natural gas fuel.

Source: California Energy Commission, Cogeneration Project Tracking System: Report, 1 March 1983, and Bendix Environmental Research, Inc.

APPENDIX E: LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS

Level of Service	Description
A	Level of Service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.
B	Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can be generally described as very good.
C	Level of Service C describes a condition where the approach to an intersection if often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.
D	Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operations can generally be described as fair.
E	Capacity occurs at Level of Service E. It represents the most number of vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting up-stream of the intersection and vehicles may be delayed up to several signal cycles.
F	Level of Service F represents a jammed condition. Backups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.

Source: San Francisco Department of Public Works, Traffic Division, Bureau of Engineering, 1965.